

ECONOMIC Contribution

of Arkansas Agriculture

2012



UofA **DIVISION OF AGRICULTURE**
RESEARCH & EXTENSION
University of Arkansas System

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\$16,003,372,059

Agriculture accounted for \$16.0 billion of value added to the Arkansas economy in 2010.

That's more than
16 cents of every
\$1 of Value Added.^a

^aValue Added is the sum of employee compensation, proprietary income, other property-type income and indirect business taxes.

Source: "Economic Contribution of the Agricultural Sector to the Arkansas Economy in 2010," by McGraw, K., J. Popp, and W. Miller. Research Report 991. Arkansas Agricultural Experiment Station, University of Arkansas System Division of Agriculture, Fayetteville. Forthcoming 2012.

Computed using 2010 Arkansas database from MIG, Inc. (Latest year for which relevant data were available.)

Total Contribution

The total economic contribution of the Aggregate Agriculture Sector includes three areas of wealth and job generation.



- **Direct Contributions** are generated by farm production and processing of crops, poultry, livestock and forest products.
- **Indirect Contributions** result when agricultural firms purchase materials and services from other Arkansas businesses — a very important part of the economy in many communities.
- **Induced Contributions** result when employees of agricultural firms and their suppliers spend a portion of their income within Arkansas.

These contributions are reported in terms of Employment, Labor Income and Value Added.

- **Employment** includes all wage and salary employees, as well as self-employed workers in a given sector.

- **Labor Income** consists of two parts. First is proprietary income, which includes all income received by self-employed individuals. Second is wages, which includes all payments to workers including benefits.
- **Value Added** includes labor income plus indirect taxes and other property-type income such as payments for rents, royalties and dividends. Value added and Gross Domestic Product (GDP) are equivalent measures in theory but are estimated using different methods and data sources.

Government payments — payments made directly to some recipients in the farm sector — are included in the contribution analysis. The GDP of Food Services and Drinking Places is included in the GDP figures on pages 8 and 9, but not in the computation of direct agriculture contributions reported elsewhere in this publication. Neither input providers (fertilizer, pesticide and equipment manufacturers) nor retail locations (restaurants, grocery stores, lawn and garden centers, etc.) are considered part of the Aggregate Agriculture Sector, but some of the economic activity of these industries and other retail stores and input providers is picked up as indirect and induced effects and included in the total contribution.



Value Added by the Aggregate Agriculture Sector in Arkansas, 2010

Contribution Area	Million \$	% Total Contribution	% State Total
Production	2,274	14.2	2.4
Processing	5,637	35.2	5.8
Ag-Related	332	2.1	0.3
Total Direct	8,243	51.5	8.5
Indirect	4,526	28.3	4.7
Induced	3,234	20.2	3.3
TOTAL	16,003	100.0	16.6

Agriculture Provides

- 256,244 jobs, which is approximately one in every six jobs in Arkansas.
- Almost \$9.8 billion in labor income, or 16% of the state's total labor income.

Arkansas Counts on Agriculture

The contribution of the Agriculture and Food Sector as a percentage of the GDP by State in Arkansas is greater than in any contiguous state as well as the averages for the Southeast region and the United States.

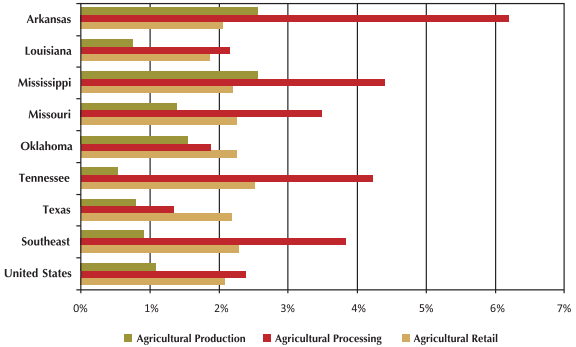
Agriculture and Food Sector as a percentage of GDP by State, 2010

State/Region	Percent of GDP by State
Arkansas	10.81
Louisiana	4.77
Mississippi	9.12
Missouri	7.13
Oklahoma	5.68
Tennessee	7.27
Texas	4.32
Southeast ^a	7.03
U.S.	5.56

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Accounts Data, 2012. GDP does not include the value of indirect or induced contributions. Agriculture and Food Sector includes production, processing and retail.

^aThe Southeast is defined by BEA to include the states AL, AR, FL, GA, KY, LA, MS, NC, SC, TN, VA and WV, and is not the sum of Arkansas's contiguous states listed in the table.

Agricultural Production, Processing and Retail as a percentage of GDP by State, 2010



Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Accounts Data, 2012.

For comparison among states, only the direct contributions of agricultural production, processing and retail are used as a percentage of GDP by State and GDP for the United States.

GDP and Value Added are similar measures of wealth created by an economy; however, different data sources and methodologies are used to calculate these measures. GDP does not include the value of indirect or induced contributions.

Arkansas is in the top 25 states in the production of 24 agricultural commodities. (2011 Production Year)^a

- No. 1 in Rice
- No. 2 in Broilers
- No. 3 in Catfish (foodsize)
- No. 3 in Cotton (upland)
- No. 3 in Turkeys
- No. 4 in Cottonseed
- No. 5 in Sweet Potatoes
- No. 6 in Grain Sorghum
- No. 9 in Soybeans
- No. 10 in Chicken Eggs
- No. 10 in Pecans
- No. 11 in Beef Cows^b
- No. 12 in Tomatoes
- No. 13 in Blueberries
- No. 13 in Grapes
- No. 14 in Watermelons
- No. 16 in Sod Production Acreage^c
- No. 20 in Wheat
- No. 21 in Cattle and Calves
- No. 21 in Corn for Grain
- No. 21 in Honey
- No. 21 in Oats
- No. 21 in Peaches
- No. 24 in Hogs and Pigs

(Footnotes on page 11.)

Total Contribution

The Natural State

Agriculture and forestry are vital to the diverse, interactive economy of Arkansas as well as to our very identity as “The Natural State.”

National Ranking

- **No. 14 in agricultural cash receipts in 2010.**
Arkansas had 48,300 farms on 13.5 million acres in 2011. (USDA: NASS, 2011 and 2012)
- **No. 4 in saw-log production in the South***, with about 18.8 million acres of forest land representing approximately 56% of the total land base in 2011.

Source: Johnson, T.G., J.W. Bentley and M. Howell, 2009; U.S. Census Bureau, 2011; USDA Forest Service Forest Inventory and Analysis, 2012.

*Includes 13 states: OK, TX, AR, LA, KY, TN, MS, AL, GA, FL, SC, NC and VA

(Footnotes for page 10.)

Source: National Agricultural Statistics Service, data for 2011.

^a Data for some states are unavailable due to nondisclosure, especially for livestock and livestock products commodities. As a result, these states are not included in the rankings, which may affect Arkansas’s actual rank.

^b Beef cows is a Jan. 1, 2011, inventory comprised of “beef cows that have calved” and “beef cow replacement heifers 500 pounds and over.”

^c Source: Census of Agriculture, data for 2007; Haydu, J.J., A.W. Hodges, and C.R. Hall, 2006.

Highlights of Arkansas Agriculture 2007-2011

	Year	Production (thousands)
Rice	2010	115,675 cwt.
Broilers	2008	6,380,000 lbs.
Catfish (foodsize)	2007	98,700 lbs.
Cotton (upland)	2007	1,896 bales
Turkeys	2008	610,700 lbs.
Cottonseed	2007	671 tons
Sweet Potatoes	2011	630 cwt.
Grain Sorghum	2007	20,640 bu.
Soybeans	2011	124,260 bu.
Chicken Eggs	2007	3,236,000 eggs
Pecans	2011	2,600 lbs.
Beef Cows ^a	2010	1,116 head
Tomatoes	2008	279 cwt.
Blueberries	2008	800 lbs.
Grapes	2010	3,980 lbs.
Watermelon	2007	418 cwt.
Turfgrass ^b	2007	8.3 acres
Wheat	2008	55,860 bu.
Cattle and Calves	2007	562,426 lbs.
Corn for Grain	2007	99,710 bu.
Honey	2007	2,240 lbs.
Oats	2011	900 bu.
Peaches	2008	8,400 lbs.



<i>(Continued)</i>	Year	Production (thousands)
Hogs and Pigs	2008	141,380 lbs.
Hay	2009	3,131 tons
Timber	2007	22,560 tons

Highest commodity production levels for the years 2007-2011.

Source: National Agricultural Statistics Service, data for 2007-2011, and Arkansas Forestry Commission, 2012.

^a Beef cows is a Jan. 1, 2011, inventory comprised of “beef cows that have calved” and “beef cow replacement heifers 500 pounds and over.”

^b Source: Census of Agriculture, data for 2007.

U.S. Agriculture 2009-2010

Arkansas's diverse portfolio of livestock products and crops supports the value of the agriculture sector year in and year out. Nationally, Arkansas ranked 21st in net farm income in 2010, with a value of \$1.34 billion^a out of the U.S. \$79.06 billion^a (ERS, 2012). The total value of Arkansas cash receipts decreased for the second year in a row and lost 2% from \$7.83 billion^a in 2009 to \$7.69 billion^a in 2010. However, Arkansas's total cash receipts were still above the 10-year average of \$7.48 billion^a. U.S. cash receipts fared better from 2009 to 2010, gaining 1% from \$310.63 billion^a in 2009 to \$314.35 billion^a in 2010.

The largest percentage increases were attributed to tomatoes (172%) and peaches (126%). Tomato yield per acre increased 166% from 2009 to 2010, resulting in a 192% increase in hundredweight produced. Peach yield per acre increased 100% from 2009 to 2010, resulting in a 153% increase in utilized tons produced. Yields in 2009 were depressed due to record rainfall, and while they increased in 2010, record heat still prevented most from reaching their potential. Wheat (-60%) and hay (-25%) experienced the largest percent decreases. Wheat was affected by a 62% decrease in

acres harvested, resulting in a 53% decline in bushels produced. Hay yield per acre decreased 18%, resulting in a 14% decrease in tons produced.

Farm real estate owners in the state should recognize the value of their investments. In 2010, the average value per acre of farm real estate in Arkansas was \$2,500^b; 16.8% higher than the national average of \$2,140^b. Of Arkansas's contiguous states, only Tennessee claimed a higher per acre value than Arkansas in 2010 (\$3,450^b) (NASS, 2012).

^a real 2010 dollars

^b nominal 2010 dollars



Direct Contribution

Crops Sector

The crops sector includes all enterprises engaged in the production and processing of cotton, food and feed grains, hay and pasture, fruits, nuts, vegetables and oil bearing crops.

Direct contribution of crops

Employment	60,431 jobs
Wages	\$871 Million
Labor Income	\$1,731 Million
Value Added	\$2,788 Million





Strength in Diversity

Arkansas is the leading producer and processor of rice in the U.S. (Richardson and Outlaw, 2010).

The rice industry (rice farming and milling) has a direct contribution of

- 1 in 6 crops jobs;
- \$1 in every \$5 of crops labor income; and
- \$1 in every \$5 of crops value added.

Soybean farming is the number one crop production industry in Arkansas with a direct value added contribution of \$520 million.

The production of soybeans, rice, wheat, corn, grain sorghum, oats and cotton accounted for 35% of the Crops Sector's direct value added. Remaining direct value added was comprised of the production (5%) of a variety of locally important crops (hay and forage, melons, fruits, vegetables, pecans, turfgrass and ornamental plants) and the processing of crops (60%) in the state. This diversity is a major asset in weathering downturns in a given commodity.

2011 Commodity Production

Commodity	Acres Harvested (thousands)	Production (thousands)	Value (thousand \$)
Broilers ^a		5,855,600 lbs.	2,728,710
Soybeans	3,270	124,260 bu.	1,491,120
Rice	1,154	78,100 cwt.	1,054,350
Cotton (upland) ^b	660	1,290 bales	576,475
Cattle and Calves		533,014 lbs.	484,752
Corn for Grain	520	73,840 bu.	457,808
Turkeys ^a		603,900 lbs.	411,860
Chicken Eggs ^a		2,951,000 eggs	406,174
Timber		20,417 tons	352,000
Hay	1,400	2,247 tons	223,971
Wheat	520	30,160 bu.	221,676
Cottonseed ^b		442 tons	118,014
Hogs and Pigs		83,696 lbs.	94,259
Grain Sorghum	90	6,480 bu.	37,014
Catfish (foodsize)		25,500 lbs.	26,775
Turfgrass	5.5	8.3 acres	16,392
Tomatoes	1.2	230 cwt.	14,720
Sweet Potatoes	3.5	630 cwt.	10,017
Pecans		2,600 lbs.	4,778
Watermelon	1.2	318 cwt.	3,657
Peaches	1.2	3,520 lbs.	2,728
Oats	10	900 bu.	2,700
Honey		1,408 lbs.	2,267
Grapes	0.6	2,200 lbs.	1,080
Blueberries	0.3	400 lbs.	692
Total	7,637		8,743,959

Sources: National Agricultural Statistics Service, 2012, and Arkansas Forestry Commission, 2012, except Turfgrass, Census of Agriculture, data for 2007.

^aTotal Poultry Industry (Broilers, Turkeys and Chicken Eggs): \$3,547M

^bTotal Cotton Industry (Cotton (Upland) and Cottonseed): \$694M

Animal Agriculture Sector

The animal agriculture sector includes production and processing of poultry, eggs, beef and dairy products, hogs and pigs and other animals.

Beef cattle and poultry are companion enterprises on many farms, with poultry providing cash flow and fertilizer for pastures.

Aquaculture is a major enterprise and is often a companion to row crop farming in the Delta region.





Direct contribution of animal agriculture

Employment	52,050 jobs
Wages	\$1,512 Million
Labor Income	\$1,844 Million
Value Added	\$2,565 Million

Protein Power

Arkansas is a leading producer, processor and marketer of protein products.

Poultry and egg production and processing is the leading industry, with direct contributions of:

- 1 in 4 agricultural jobs;
- Almost \$1 in every \$3 of agricultural wages and income; and
- \$1 in every \$5 of agricultural value added.

Cattle are raised in every county, with a January 1, 2012, inventory of 1,670,000 head. Of these, 1,024,000 were beef cows. The swine inventory for December 1, 2011, was 107,000 head. Foodsize catfish numbered 13,090,000 on January 1, 2012.

Source: National Agricultural Statistics Service, data for 2011 and 2012.



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Direct contribution of poultry

Employment	37,343 jobs
Wages	\$1,196 Million
Labor Income	\$1,507 Million
Value Added	\$1,846 Million

Direct Contribution

Forestry Sector

The forestry sector includes forest products, furniture, and wood and paper processing.

Timber acreage standing includes the following forest-type groups: 41% oak and hickory; 30% loblolly and shortleaf pine; 11% oak and pine; 11% oak, gum and cypress; 5% elm, ash and cottonwood; and 3% other forest-type groups.^a

^a Numbers may not sum to 100% due to rounding.

Source: USDA Forest Service Forest Inventory and Analysis, 2012.





Direct contribution of forestry

Employment	27,081 jobs
Wages	\$1,381 Million
Labor Income	\$1,494 Million
Value Added	\$2,559 Million

Economic Engine

Forestry is the leading employer in South Arkansas — one of the nation's leading timber-producing regions.

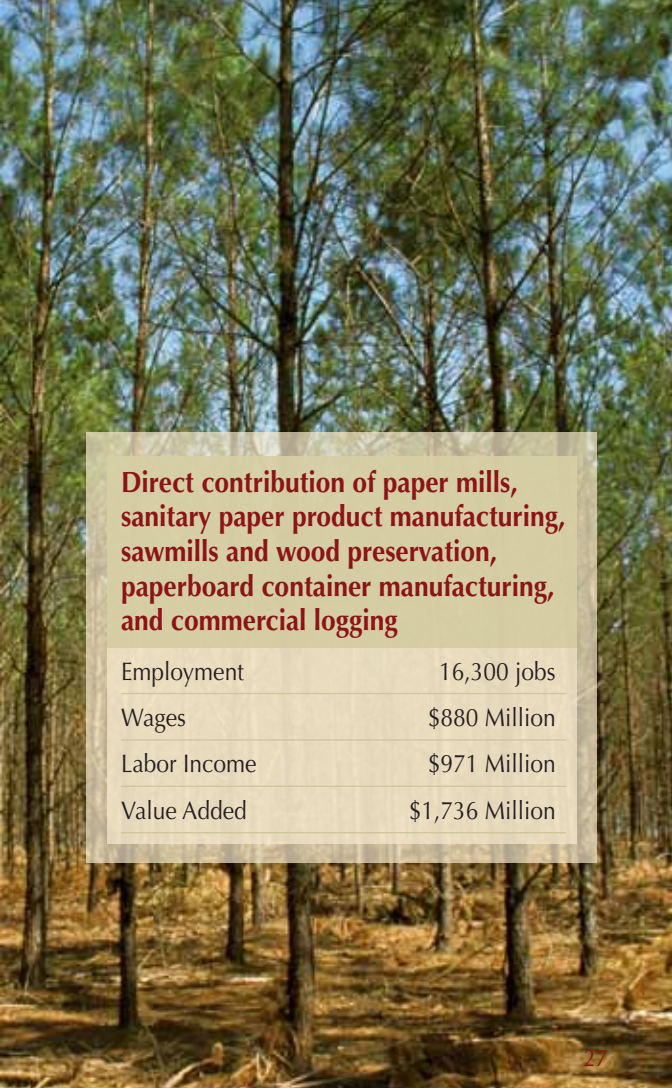
Paper mills, sanitary paper product manufacturing, sawmills and wood preservation, paperboard container manufacturing, and commercial logging contribute:

- 60% of forestry jobs;
- Two-thirds of wages and income; and
- 68% of value added.

A Multifaceted Resource

Forest-based tourism, recreation, watershed protection, wildlife habitat and aesthetic values are vital to the economy, environmental health, culture and identity of Arkansas.





**Direct contribution of paper mills,
sanitary paper product manufacturing,
sawmills and wood preservation,
paperboard container manufacturing,
and commercial logging**

Employment	16,300 jobs
Wages	\$880 Million
Labor Income	\$971 Million
Value Added	\$1,736 Million

Across the Board

Arkansas agriculture generates jobs in all 20 industries in the North American Industry Classification System (NAICS) used for economic analysis.

Employment generated by agriculture in top five NAICS industries

Manufacturing	76,781 jobs
Agriculture, Forestry, Fishing and Hunting	75,359 jobs
Health and Social Services	12,386 jobs
Retail Trade	12,035 jobs
Transportation and Warehousing	11,782 jobs
Top Five Total	188,343 jobs
(74% of all jobs generated by agriculture)	

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Accounts Data, 2012.

Based on 2-Digit NAICS Aggregation (U.S. Census Bureau, 2006)



The far-reaching contributions of agriculture are seen in the distribution of value added throughout the economy.

Value Added generated by agriculture in top five NAICS industries

Manufacturing	\$5,997 Million
Agriculture, Forestry, Fishing and Hunting	\$2,606 Million
Real Estate and Rental	\$1,308 Million
Wholesale Trade	\$1,132 Million
Transportation and Warehousing	\$841 Million
Top Five Total	\$11,884 Million
(74% of all value added generated by agriculture)	

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Accounts Data, 2012.

Based on 2-Digit NAICS Aggregation (U.S. Census Bureau, 2006)

Promoting Sustainable Farming Systems

Division team helps farmers fight resistant weeds

The Division of Agriculture's Resistant Weed Management Team is addressing one of the most important issues in Arkansas agriculture: glyphosate-resistant weed populations. Although glyphosate-resistant soybean and cotton varieties have improved weed control in those crops, repeated exposure to the same herbicide has resulted in emergence of resistant weed populations.



Division of Agriculture weed scientists anticipated the emergence of resistant weed populations and developed and promoted practices to avoid or delay their emergence.

Research has documented benefits of practices such as deep tillage and cover crops and has provided details on crop-specific recommendations. Basic principles for managing a resistant weed population include the following practices:

- Plant in a weed-free seedbed.
- Apply preplant or preemergence herbicide.
- Overlap residual herbicides for continuous control.
- Apply herbicides at fully recommended rates.
- Use multiple effective modes of action against the most resistant prone weeds.
- Scout fields and control all escapes.
- Remove potentially resistant weeds through and after harvest before they produce seed.
- Manage weeds along field edges.

The Center for Agricultural and Rural Sustainability

The mission of the Division of Agriculture's **Center for Agricultural and Rural Sustainability (CARS)** is to increase prosperity for rural Arkansas through sustainable practices. The Center has identified three major focus areas:

- **Sustainability Indices** — measure key impact areas and trends over time, foster productive dialogue and promote progress toward sustainability.
- **Life Cycle Analysis** — quantify the environmental and social impacts of a product by measuring the inputs and outputs associated with its supply chain.



- **Food Industry Program** — research, education and outreach focused on strengthening farm to retailer connections and promoting locally produced foods.

CARS faculty and staff have constructed a portfolio of life cycle assessments (LCAs) for various agricultural crops including cotton, cocoa, corn, dairy products, peanuts and pork. These LCAs provide the baseline data necessary for agricultural sector-level strategies for increasing the safety, security, and stability of U.S. products. They also support development of farm-level sustainability metrics that are informed by science, outcomes-based, transparent, and technology-neutral. CARS faculty and staff are internationally recognized leaders in the science of sustainable agriculture.



Arkansas is Our Campus

The University of Arkansas System's Division of Agriculture conducts research and extension programs to support Arkansas agriculture in its broadest definition.

Our employees include Cooperative Extension Service faculty in all 75 counties, Agricultural Experiment Station scientists and Extension specialists on five university campuses and at five research and extension centers, and support personnel at seven research stations and five other units.



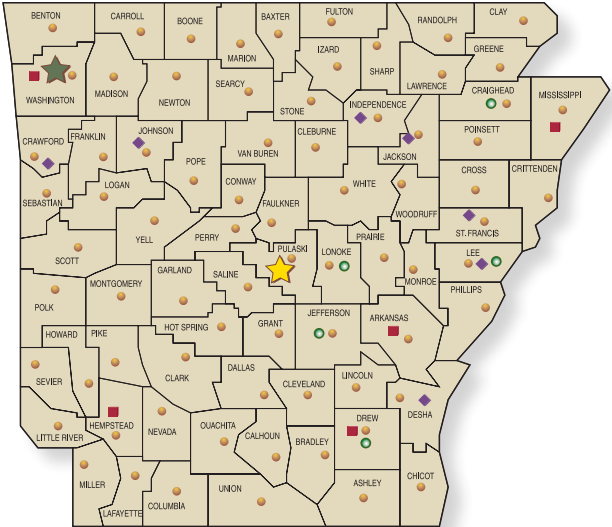
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University of Arkansas System

Locations



- Division & CES Headquarters, Little Rock
- AAES Headquarters, Fayetteville
- Research & Extension Centers
- Research Stations
- Other Locations
- County Extension Offices



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