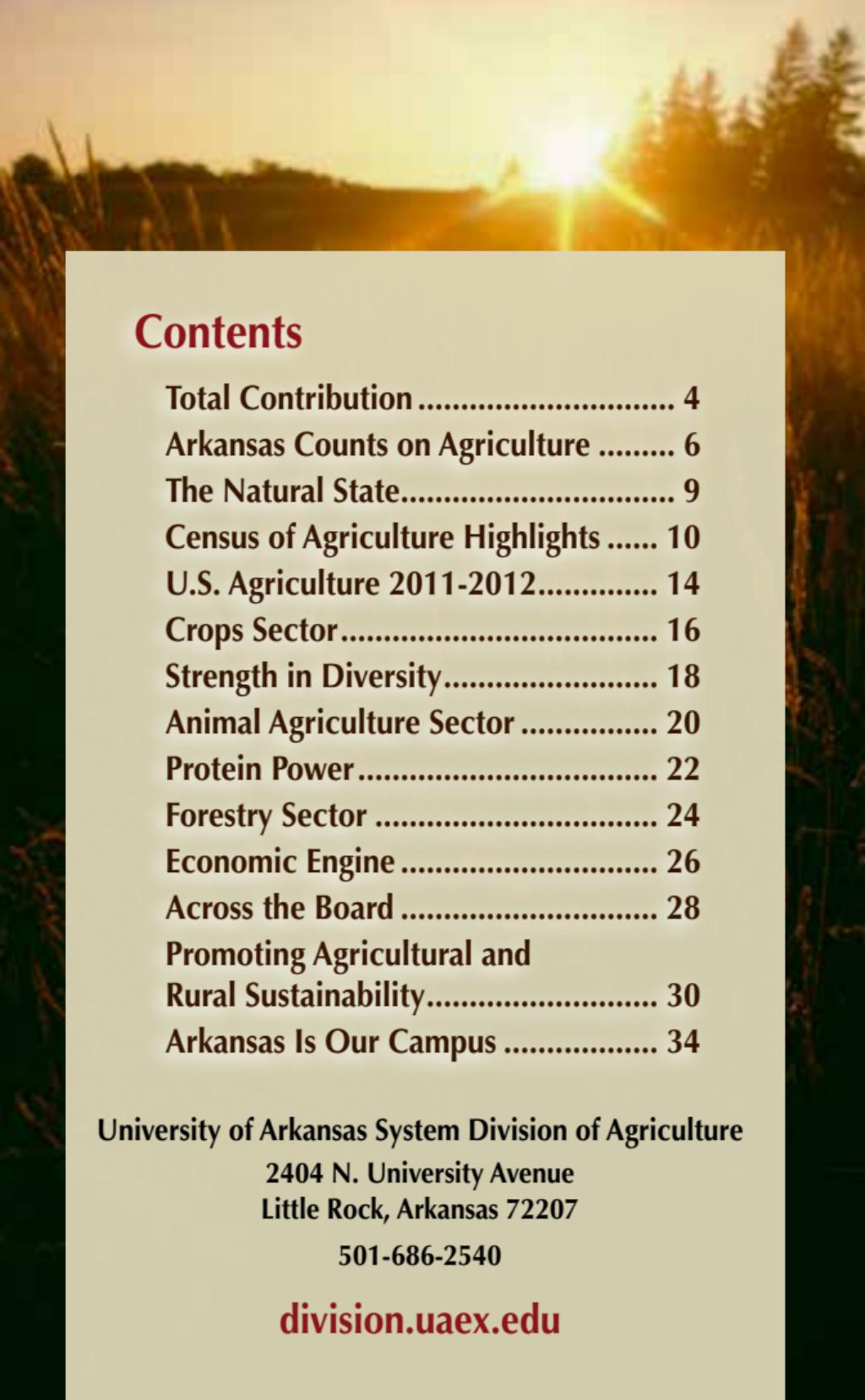




ECONOMIC Contribution of Arkansas Agriculture 2014

U*of***A** DIVISION OF AGRICULTURE
RESEARCH & EXTENSION
University of Arkansas System



Contents

Total Contribution	4
Arkansas Counts on Agriculture	6
The Natural State.....	9
Census of Agriculture Highlights	10
U.S. Agriculture 2011-2012.....	14
Crops Sector.....	16
Strength in Diversity.....	18
Animal Agriculture Sector	20
Protein Power.....	22
Forestry Sector	24
Economic Engine	26
Across the Board	28
Promoting Agricultural and Rural Sustainability.....	30
Arkansas Is Our Campus	34

University of Arkansas System Division of Agriculture

2404 N. University Avenue
Little Rock, Arkansas 72207

501-686-2540

division.uaex.edu

\$20,117,634,954

Agriculture accounted for
\$20.1 billion of Value Added^a
to the Arkansas economy in 2012.

That's almost 18 cents of
every \$1 of Value Added.

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

Sources: "Economic Contribution of the Agricultural Sector to the Arkansas Economy in 2012," by English, L., J. Popp, and W. Miller. Research Report 994 and "Economic Contribution of Agriculture and Food to Arkansas' Gross Domestic Product 1997-2012", by English, L., J. Popp, and W. Miller. Research Report 995. Arkansas Agricultural Experiment Station, University of Arkansas System Division of Agriculture, Fayetteville. Forthcoming 2014.

Computed using 2012 Arkansas database from MIG, Inc. (Latest year for which relevant data were available.) Methodological changes instituted this year have increased our capture of indirect and induced impacts, thus increasing total contribution numbers.

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 Jobs, Labor Income and Value Added.

- **Jobs** 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. Input providers (fertilizer, pesticide and equipment manufacturers) and 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.

Arkansas Counts on Agriculture

The Aggregate Agriculture Sector's share of the state economy is much greater for Arkansas than for any contiguous state and for the averages of the Southeast region and the United States.

How much greater?

The Aggregate Agriculture Sector's share of the state economy^a in Arkansas is:

- **3.7 times greater** than in Texas.
- **2.5 times greater** than in Louisiana.
- **2.2 times greater** than in Oklahoma.
- **1.5 times greater** than in Tennessee.
- **1.4 times greater** than in Missouri.
- **1.2 times greater** than in Mississippi.
- **1.6 times greater** than for the Southeast^b region.
- **2 times greater** than for the U.S. as a whole.

^a Calculations based on the percent contribution of the Aggregate Agriculture Sector to state GDP. Data Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Accounts Data, 2014.

^b The Southeast is defined by BEA to include the states Ala., Ark., Fla., Ga., Ky., La., Miss., N.C., S.C., Tenn., Va. and W.Va., and is not the sum of Arkansas' contiguous states listed in the table.

Value Added by the Aggregate Agriculture Sector in Arkansas, 2012

Contribution Area	Million \$	% Total Contribution	% State Total
Production	2,842	14.1	2.5
Processing	6,141	30.5	5.4
Ag-Related	220	1.1	0.2
Total Direct	9,203	45.7	8.1
Indirect	5,820	28.9	5.1
Induced	5,094	25.3	4.5
TOTAL	20,118	100.0	17.7

Agriculture Provides

- 280,959 Jobs, which is approximately one in every six Jobs in Arkansas.
- Almost \$11.5 billion in Labor Income, or 17% of the state's total Labor Income.



Arkansas is in the top 25 states in the production of 23 agricultural commodities.

(2013 Production Year)^a

- **No. 1 in Rice**
- **No. 2 in Broilers**
- **No. 3 in Catfish (foodsize)**
- **No. 4 in Cotton (upland)**
- **No. 4 in Cottonseed**
- **No. 4 in Turkeys**
- **No. 5 in Grain Sorghum**
- **No. 6 in Sweet Potatoes**
- **No. 9 in Soybeans**
- **No. 10 in Chicken Eggs**
- **No. 11 in Pecans**
- **No. 13 in Beef Cows^b**
- **No. 13 in Blueberries**
- **No. 13 in Grapes**
- **No. 14 in Corn for Grain**
- **No. 14 in Watermelons**
- **No. 15 in Tomatoes**
- **No. 20 in Honey**
- **No. 20 in Wheat**
- **No. 21 in Hogs and Pigs**
- **No. 22 in Cattle and Calves**
- **No. 22 in Hay**
- **No. 23 in Peaches**

(Footnotes on page 9.)

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. 15 in agricultural cash receipts in 2012.** Arkansas had 44,600 farms on 13.8 million acres in 2013. (USDA NASS, 2014)
- **No. 4 in saw-log production in the South***, with about 19.0 million acres of forest land representing approximately 57% of the total land base in 2012.

Source: Johnson, T.G., J.W. Bentley and M. Howell, 2014; U.S. Census Bureau, 2014; USDA Forest Service Forest Inventory and Analysis, 2014.

*Includes 12 states: Okla., Ark., La., Ky., Tenn., Miss., Ala., Ga., Fla., S.C., N.C. and Va. (TPO, 2011)

(Footnotes for page 8.)

Source: National Agricultural Statistics Service, data for 2013.

^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' actual rank.

^b Beef cows is a Jan. 1, 2013, inventory comprised of “beef cows that have calved” and “beef cow replacement heifers 500 pounds and over.”

^c Source: Census of Agriculture, data for 2012.

Census of Agriculture Highlights

Release of the 2012 Census of Agriculture provides the opportunity to highlight additional crops where annual reporting is limited. The most recent Census indicates that Arkansas ranks in the top 25 states by value for the following 12 commodities.

Commodity	\$ Value	Rank
Baitfish	22,710,000	1
Sport or Game Fish	13,980,000	1
Ornamental Fish	2,027,000	3
Rabbits, Live	624,000	5
Crustaceans	183,000	9
Meat Goats	1,886,000	16
Flower Seeds	10,480	18
Mules, Burros, Donkeys	223,000	21
Goats (All)	2,149,000	22
Turfgrass (Sod)	8,944,528	21
Trout	2,155,000	24
Elk in Captivity	36,000	25



Additionally, the most recent Census of Agriculture indicates that Arkansas ranks in the top 25 states in acres harvested for the following 10 commodities.

Commodity	Acres Harvested	Rank
Blackberries and Dewberries	334	6
Peas, such as Green Southern (Cowpeas), Blackeyed, Crowder	1,387	7
Sorghum for Syrup	31	9
Peanuts for Nuts	13,594	10
Okra	30	11
Short Rotation Woody Crops	206	16
Mustard Greens	36	16
Turfgrass (Sod)	5,279	16
Beans, Snap (Bush and Pole)	2,297	20
Turnips	14	22

Source: 2012 Census of Agriculture.



All photos © 2014 PhotoSpin

Highlights of Arkansas Agriculture 2009-2013

	Year	Production (thousands)
Rice	2010	115,675 cwt.
Broilers	2013	5,978,400 lbs.
Catfish (foodsize)	2009	58,100 lbs.
Cotton (upland)	2012	1,297 bales
Cottonseed	2012	450 tons
Turkeys	2011	606,950 lbs.
Grain Sorghum	2013	12,750 bu.
Sweet Potatoes	2012	780 cwt.
Soybeans	2013	140,505 bu.
Chicken Eggs	2013	3,069,000 eggs
Pecans	2013	2,700 lbs.
Beef Cows ^a	2010	1,116 head
Blueberries	2010	650 lbs.
Grapes	2010	3,980 lbs.
Corn for Grain	2013	162,690 bu.
Watermelon	2012	423 cwt.
Tomatoes	2012	285 cwt.
Wheat	2013	38,130 bu.
Honey	2012	1,575 lbs.
Hogs and Pigs	2009	109,831 lbs.
Hay	2009	3,131 tons
Cattle and Calves	2009	549,883 lbs.
Peaches	2010	5,660 lbs.
Oats	2011	900 bu.
Timber	2013	21,375 tons



(Footnotes for page 12.)

Highest commodity production levels for the years 2009-2013.

Source: National Agricultural Statistics Service, data for 2009-2013, and Arkansas Forestry Commission, 2014.

^aBeef cows is a Jan. 1, 2013, inventory comprised of “beef cows that have calved” and “beef cow replacement heifers 500 pounds and over.”

U.S. Agriculture 2011-2012

Arkansas' diverse portfolio of livestock products and crops supports the value of the agriculture sector year in and year out.

In 2012, there were 45,100 farms in Arkansas. These farms generated a net farm income of \$2.0 billion^a (ERS, 2014). Arkansas ranked 13th in total agricultural exports with a value of \$3.9 billion. Arkansas was ranked in the top ten in the nation for exports of four commodities:

- Number 1 in rice, with exports valued at \$863 million;
- Number 2 in chicken meat, with exports valued at \$533 million;
- Number 5 in cotton, with exports valued at \$463 million; and
- Number 9 in soybeans, with exports valued at \$1,113 million.

In 2012, Arkansas ranked 34th in overall GDP at \$113.1 billion^a (BEA, 2014). However in terms of agricultural cash receipts in 2012, Arkansas ranked 16th with a value of \$9.8 billion. Arkansas ranked 16th in total crop cash receipts at \$4.8 billion and 12th in total livestock cash receipts at \$4.6 billion.

According to NASS, rice and soybean cash receipts represented 32% of total agricultural cash receipts and 63% of the total crop cash receipts in 2012. Arkansas rice cash receipts comprised almost 42% of the U.S. total rice cash receipts.

Arkansas total cash receipts increased 14% between 2011 and 2012.^b Cash receipts for many individual crops in 2012 increased greatly over their 2011 values. Crops with the largest increases in value between 2011 and 2012 were sweet potatoes (114% increase), sorghum grain (87%), watermelon (81%), corn (71%), peaches (66%) and soybeans (44%). However, some of the crops saw a decrease in value such as pecans (35% decrease) and oats (19%).

In real dollar terms, cash receipts from livestock and livestock products increased \$184 million (or 4.4%) from 2011 to \$4.43 billion. This overall growth was driven by increases in cash receipts for honey (30%), cattle and calves (10%), chicken eggs (6%) and broilers (5%).

^a All values in 2012 dollars unless otherwise noted.

^b Comparisons between 2011 and 2012 values presented here are different than those released by the USDA NASS in the Arkansas Agricultural Cash Receipts Report (August 27, 2013). Our calculations are based on real 2012 dollars. That is, our numbers are adjusted for inflation, which allows for a true “apples to apples” comparison.

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

Jobs	63,976
Wages	\$861 Million
Labor Income	\$1,759 Million
Value Added	\$2,952 Million





Direct Contribution — Crops

Strength in Diversity

Arkansas has been the leading producer of rice in the U.S. since 1973. (Dunn and Flanders, 2012)

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

- 1 in 6 crops Jobs;
- Almost \$1 in every \$5 of crops Labor Income; and
- \$1 in every \$5 of crops Value Added.

Soybeans is the second largest crop industry, although it is number one in crop production with a direct Value Added contribution of \$817 million.

The production of soybeans, rice, wheat, corn, grain sorghum, oats and cotton accounted for 51% 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 (44%) of crops in the state. This diversity is a major asset in weathering downturns in a given commodity.

2013 Commodity Production

Commodity	Acres Harvested (thousands)	Production (thousands)	Value (thousand \$)
Broilers ^a		5,978,400 lbs.	3,622,910
Soybeans	3,230	140,505 bu.	1,840,616
Rice	1,070	80,888 cwt.	1,253,764
Corn for Grain	870	162,690 bu.	845,988
Cattle and Calves		522,149 lbs.	487,437
Chicken Eggs ^a		3,069,000 eggs	478,810
Timber		21,374.72 tons	398,470
Turkeys ^a		560,000 lbs.	372,400
Hay	1,335	2,810 tons	360,904
Cotton (upland) ^b	305	730 bales	280,670
Wheat	615	38,130 bu.	265,004
Hogs and Pigs		100,830 lbs.	94,510
Cottonseed ^b		251 tons	65,009
Grain Sorghum	125	12,750 bu.	63,189
Sweet Potatoes	3.9	702 cwt.	22,253
Catfish (foodsize)		23,400 lbs.	21,762
Tomatoes	1	150 cwt.	7,200
Watermelon	1.6	336 cwt.	4,032
Pecans		2,700 lbs.	3,781
Honey		1,320 lbs.	2,653
Peaches	0.65	2,260 lbs.	1,819
Oats	7	511 bu.	1,737
Grapes	0.72	3,280 lbs.	1,663
Blueberries	0.23	360 lbs.	788
Total	7,565.1		\$10,497,370

Sources: National Agricultural Statistics Service, 2014, and Arkansas Forestry Commission, 2014.

^aTotal Poultry Industry (Broilers, Turkeys and Chicken Eggs): \$4,473M

^bTotal Cotton Industry (Cotton (Upland) and Cottonseed): \$346M

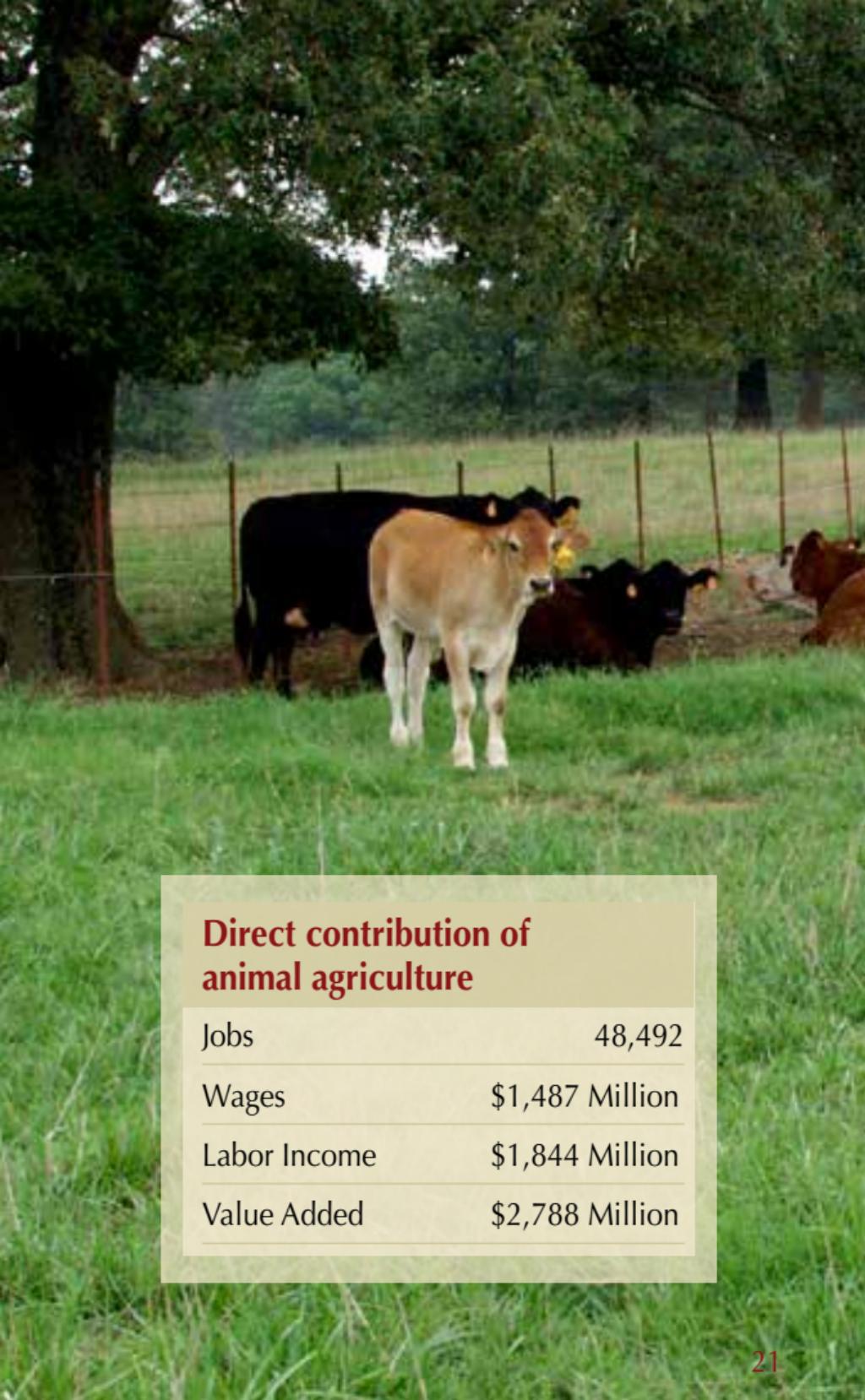
Animal Agriculture Sector

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

Jobs	48,492
Wages	\$1,487 Million
Labor Income	\$1,844 Million
Value Added	\$2,788 Million

Direct Contribution — Animal Agriculture

Protein Power

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

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

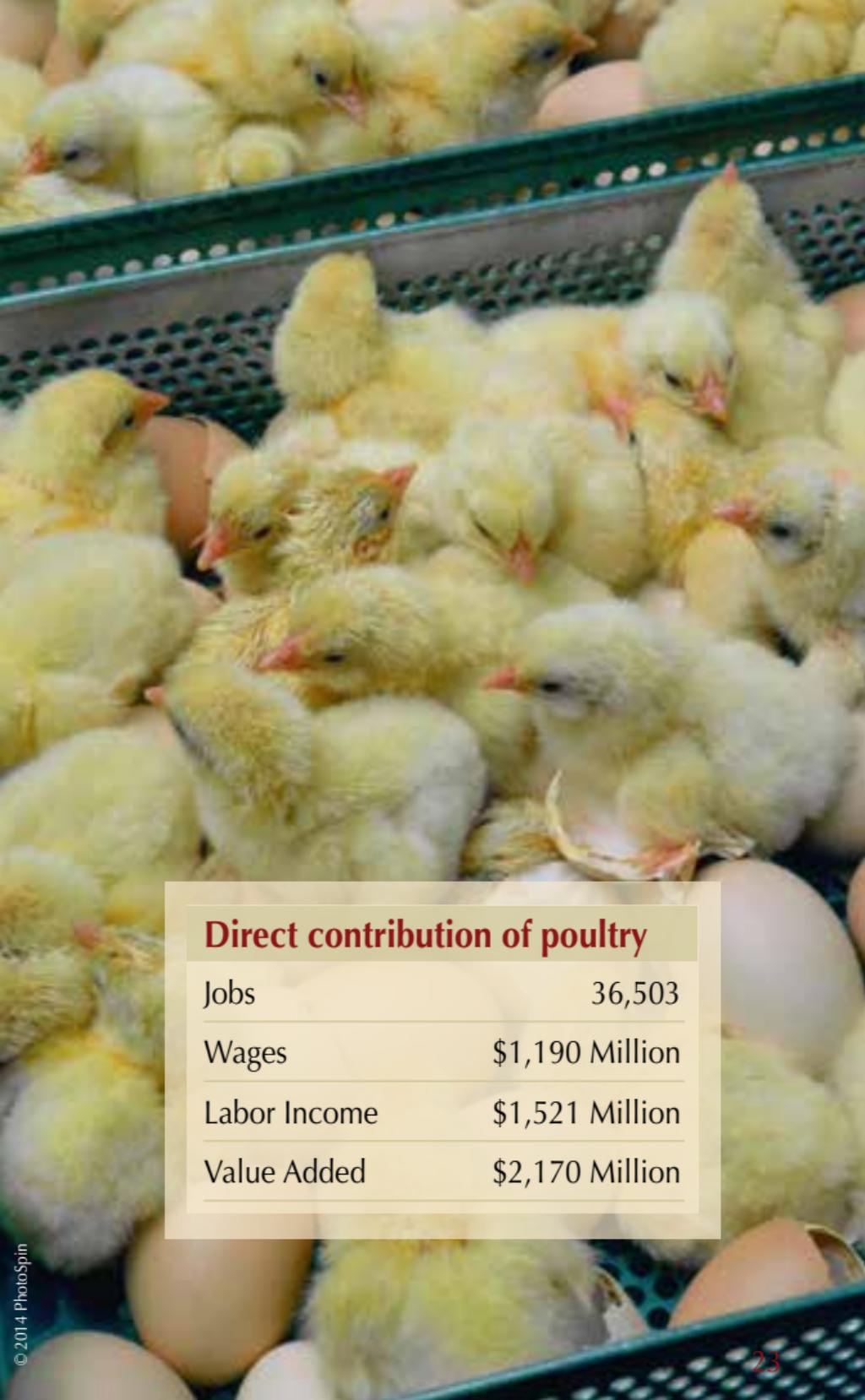
- 1 in 4 agricultural Jobs;
- \$1 in every \$4 of agricultural Labor Income; and
- Almost \$1 in every \$4 of agricultural Value Added.

Other sectors round out Arkansas animal agriculture. Cattle are raised in every county, with a January 1, 2014, inventory of 1,660,000 head. Of these, 882,000 were beef cows. The swine inventory for December 1, 2013, was 110,000 head. Foodsize catfish numbered 11,480,000 on January 1, 2014.

Source: National Agricultural Statistics Service, data for 2013 and 2014.



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Direct contribution of poultry

Jobs	36,503
Wages	\$1,190 Million
Labor Income	\$1,521 Million
Value Added	\$2,170 Million

Forestry Sector

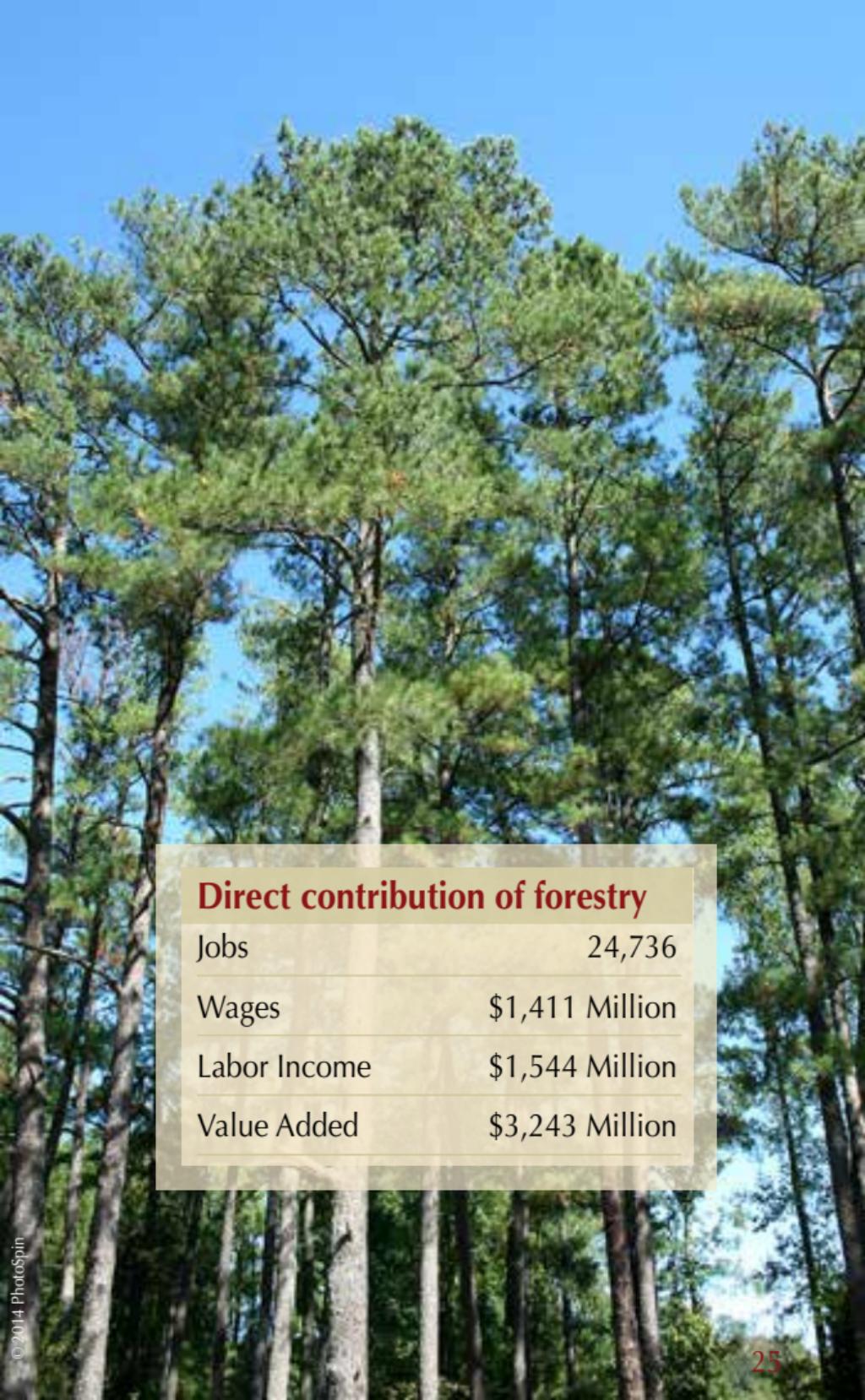
The forestry sector includes forest products, furniture, and wood and paper processing.

Timber acreage standing includes the following forest-type groups: 41% oak and hickory; 30% loblolly and shortleaf pine; 10% oak and pine; 11% oak, gum and cypress; 5% elm, ash and cottonwood; and 2% other forest-type groups.^a

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

Source: USDA Forest Service Forest Inventory and Analysis, 2014.



The background of the slide is a photograph of a forest with many tall, thin pine trees. The sky is clear and blue.

Direct contribution of forestry

Jobs	24,736
Wages	\$1,411 Million
Labor Income	\$1,544 Million
Value Added	\$3,243 Million

Economic Engine

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

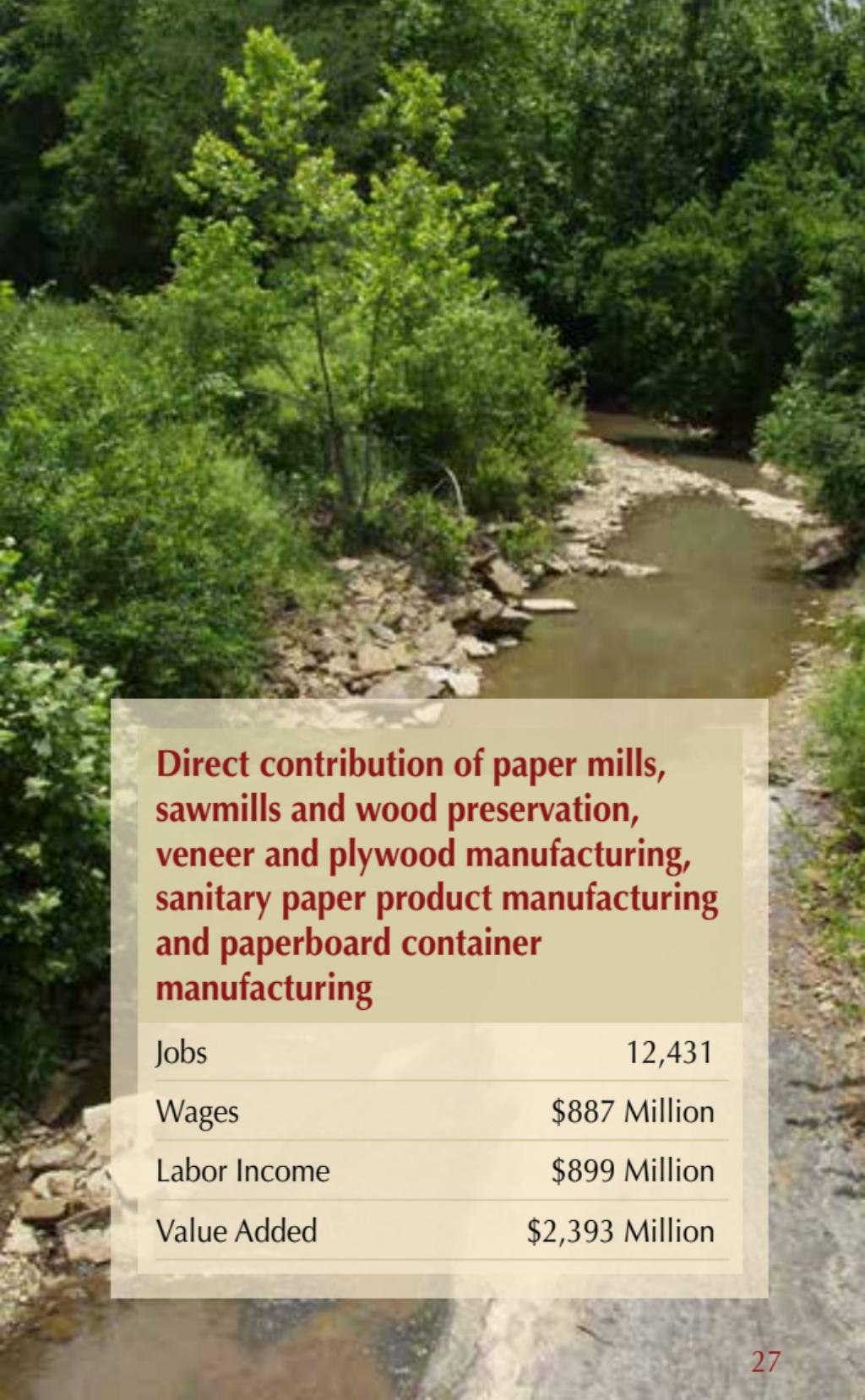
Paper mills, sawmill and wood preservation, veneer and plywood manufacturing, sanitary paper product manufacturing, and paperboard container manufacturing contribute:

- 50% of forestry Jobs;
- Almost 60% of Wages and Labor Income; and
- 74% 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,
sawmills and wood preservation,
veneer and plywood manufacturing,
sanitary paper product manufacturing
and paperboard container
manufacturing**

Jobs	12,431
Wages	\$887 Million
Labor Income	\$899 Million
Value Added	\$2,393 Million

Total Contribution

Across the Board

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

Jobs generated by agriculture in top five NAICS industries

Agriculture, Forestry, Fishing and Hunting	77,746
Manufacturing	72,964
Health and Social Services	15,285
Government and Non-NAICS ^a	14,365
Retail Trade	12,923
Top Five Total	193,282
(69% of all Jobs generated by agriculture)	

^a Government and non-NAICS is defined as Public Administration which includes executive, legislative and other government support; justice, public order and safety activities; administration of human resource, economic, environmental quality, transportation and other programs; space research and technology; national security and international affairs.

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Accounts Data, 2014.

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	\$6,583 Million
Agriculture, Forestry, Fishing and Hunting	\$3,063 Million
Real Estate and Rental	\$1,515 Million
Wholesale Trade	\$1,336 Million
Transportation and Warehousing	\$901 Million
Top Five Total	\$13,397 Million
(67% of all Value Added generated by agriculture)	

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Accounts Data, 2014.

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

Promoting Agricultural and Rural Sustainability

A Century of Improving Lives

On May 8, 1914, President Woodrow Wilson put his signature to a Congressional act that would create, in his words, “one of the most significant and far-reaching measures for the education of adults ever adopted by the government.”

The law, known as the Smith-Lever Act, created a national agricultural extension service — an action that would help transform America and Arkansas.

Today, agents and faculty of the University of Arkansas Cooperative Extension Service are the face of a partnership among federal, state and county governments whose work goes beyond agriculture.

Over the last century, the Cooperative Extension Service helped introduce modern production technology, made statewide childhood immunizations a reality and helped bring electricity to Arkansas.

The Cooperative Extension Service is still delivering the latest research advancements and lending its expertise to individuals and communities.

- As drought severely damaged pastures and livestock operations in 2012, Extension responded by showing ranchers how to recover, rebuild and make their farms more resilient to future drought.
- When avian flu was diagnosed in an Arkansas flock in 2014, Extension Veterinarian Dustan Clark and extension agents quickly convened grower groups and taught intensive sessions on biosecurity to prevent spread of the disease and ease industry concerns.
- The spotted winged drosophila, blamed for billions of dollars in losses to the fruit industry nationwide, was confirmed in Arkansas in late 2012. Extension entomologists, agents and growers worked together to identify, monitor and manage this pest effectively.
- The Arkansas 4-H program continues to demonstrate its youth development success. Research shows that youth involved in 4-H are two times more likely to go to college, two to three times more likely to study science and engineering and much less likely to abuse substances.
- Extension nutrition programs touched the lives of more than 270,000 adults and youth by helping them stretch their budgets and create healthier meals.
- Extension agents provided public policy and conflict resolution expertise to help communities preserve and enhance water quality within the state's watersheds.

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 four 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** — strengthen farm to retailer connections and promote locally produced foods through research, education and outreach.
- **Wastes reduction program** — support the sustainable agricultural production in Arkansas by developing cost effective technologies to convert production wastes into energy and/or value-added products through research, education and outreach.

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



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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

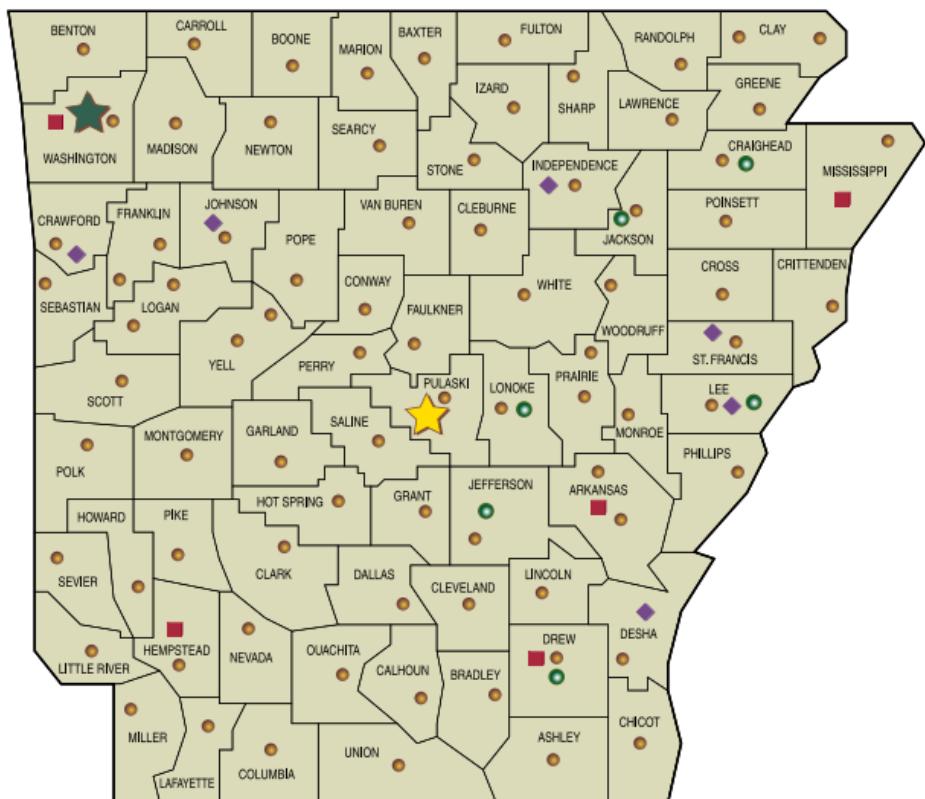
The University of Arkansas System's Division of Agriculture conducts research and extension programs to support Arkansas agriculture in its broadest definition.

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



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Locations



- ★ Division & CES Headquarters, Little Rock
- ★ AAES Headquarters, Fayetteville
- Research & Extension Centers
- ▷ Research Stations
- Associated Research & Extension Units
- County Extension Offices



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