

ECONOMIC
Contribution
of Arkansas Agriculture

2011

UA UNIVERSITY OF ARKANSAS
DIVISION OF AGRICULTURE



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\$17,017,807,260

Agriculture accounted for
\$17 billion of value added
to the Arkansas economy in 2009.

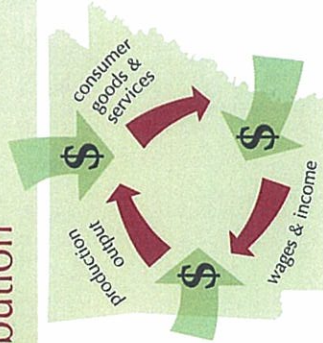
That's more than
17 cents of every
\$1 of value added.^a

^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 2009," by McGraw, K., J. Popp, and W. Miller. Research Report
990. Arkansas Agricultural Experiment Station, University of Arkansas
Division of Agriculture, Fayetteville. Forthcoming 2011.
Computed using 2009 Arkansas database from Minnesota Implan Group,
Inc. (Latest year for which relevant data were available.)

Total Contribution

The total economic contribution of the agricultural 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 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.



Aggregate of Value Added by the Agriculture Sector in Arkansas, 2009

Contribution Area	Million \$	% Total Contribution	% State Total
Production	2,483	14.6	2.5
Processing	5,296	31.1	5.4
Ag-Related	240	1.4	0.2
Total Direct	8,019	47.1	8.2
Indirect	5,145	30.2	5.2
Induced	3,854	22.6	3.9
TOTAL	17,018	100.0	17.3

Agriculture Provides

- 275,435 jobs, which is approximately one in every six jobs in Arkansas.
- \$10.7 billion in labor income, or 17% of the state's total labor income.

Arkansas Counts on Agriculture

The contribution of the agricultural 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.

Agricultural Sector as a percentage of GDP by State, 2009

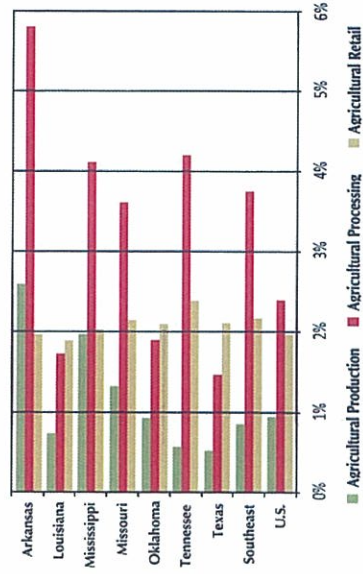
State/Region	Percent of GDP by State
Arkansas	10.37
Louisiana	4.37
Mississippi	8.12
Missouri	7.10
Oklahoma	4.94
Tennessee	7.17
Texas	4.12
Southeast ^a	6.79
U.S.	5.33

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Accounts Data, 2011.

^aAgricultural 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, 2009



Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Accounts Data, 2011.

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.

Arkansas is in the top 25 states in the production of 24 agricultural commodities. (2010 Production Year)^a

- No. 1 in Rice
- No. 2 in Broilers
- No. 3 in Catfish (foodsize)
- No. 3 in Cotton (upland)
- No. 3 in Cottonseed
- No. 5 in Sweet Potatoes
- No. 5 in Turkeys
- No. 9 in Chicken Eggs
- No. 10 in Beef Cows^b
- No. 10 in Grain Sorghum
- No. 11 in Soybeans
- No. 12 in Blueberries
- No. 13 in Grapes
- No. 13 in Pecans
- No. 13 in Tomatoes
- No. 15 in Watermelons
- No. 16 in Sod Production Acreage^c
- No. 20 in Honey
- No. 21 in Peaches
- No. 22 in Corn for Grain
- No. 22 in Hay
- No. 23 in Cattle and Calves
- No. 23 in Hogs and Pigs
- No. 23 in Oats

(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. 12 in agricultural cash receipts in 2009**, with 49,300 farms on 13.7 million acres in 2010. (USDA: NASS, 2010 and 2011)
- **No. 4 in saw-log production in the South***, with about 18.7 million acres of forest land representing approximately 56% of the total land base in 2010.

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

*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 2010.

^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, 2010, 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 2006-2010

	Year	Production (thousands)
Rice	2010	115,675 cwt.
Broilers	2008	6,380,000 lbs.
Cotton (upland)	2006	2,525 bales
Cottonseed	2006	861 tons
Catfish (foodsize)	2006	100,100 lbs.
Turkeys	2008	610,700 lbs.
Sweet Potatoes	2010	480 cwt.
Chicken Eggs	2007	3,236,000 eggs
Soybeans	2008	123,500 bushels
Grain Sorghum	2007	20,640 bushels
Pecans	2009	2,500 lbs.
Beef Cows ^a	2010	1,116 head
Blueberries	2006	1,600 lbs.
Grapes	2006	4,400 lbs.
Watermelons	2007	418 cwt.



(Continued)

	Year	Production (thousands)
Tomatoes	2006	306 cwt.
Turfgrass ^b	2007	8.3 acres
Hay	2009	3,131 tons
Cattle and Calves	2007	562,426 lbs.
Hogs and Pigs	2008	141,380 lbs.
Honey	2006	2,432 lbs.
Oats	2009	640 bushels
Corn for Grain	2007	99,710 bushels
Wheat	2008	55,860 bushels
Peaches	2008	8,400 lbs.
Timber	2006	23,664 tons

Highest commodity production levels for the years 2006-2010.

Source: National Agricultural Statistics Service, data for 2006-2010, and Arkansas Forestry Commission, 2011.

^aBeef cows is a Jan. 1, 2010, inventory comprised of "beef cows that have calved" and "beef cow replacement heifers 500 pounds and over."

^bSource: Census of Agriculture, data for 2007.



Snapshot

U.S. Agriculture 2008-2009

U.S. net farm income was down 29% from \$79.7B^a in 2008 to \$56.7B^a in 2009, but is forecast to rebound through 2010 and 2011 to the 2008 level. Nationally, Arkansas ranked 15th in net farm income in 2009, with a value of \$1.5B^b (ERS 2011). However, the total value^b of cash receipts decreased in 2009 and in almost every commodity. Only farm chickens, other livestock, pecans, and soybeans showed increases in cash receipts^b in 2009 (NASS 2010). The soybeans anomaly can be attributed to significant increases in both sales value and quantity of exports (ERS 2010).

These decreases were due primarily to sharp declines in prices. The most dramatic decline was in wholesale milk, which affected the dairy industry and livestock sector as a whole. However, this price decrease affected Arkansas less than other states, considering the small size of our dairy industry. Increased demand for substitute proteins (poultry and pork) resulted in a marked decrease in domestic demand for beef products. However, exports of beef products increased in 2009. Although U.S. total cattle inventory was at its lowest level since 1960, Arkansas experienced a 6% increase in inventory of cattle and calves during 2009.

^a chained 2005 dollars
^b nominal 2009 dollars

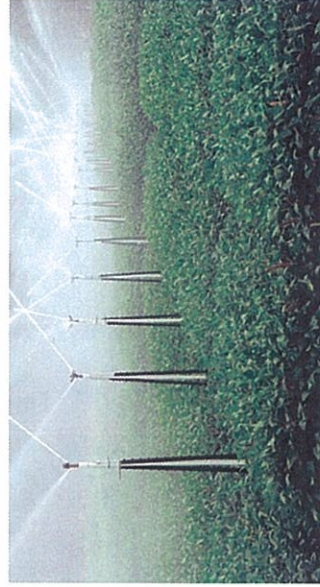
Direct Contribution

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	61,422 jobs
Wages	\$868 Million
Labor Income	\$2,048 Million
Value Added	\$2,965 Million



Direct Contribution — Crops

Strength in Diversity

Soybeans, rice, wheat, corn, grain sorghum, oats and cotton accounted for 46% of value added, 70% of jobs and 52% of labor income in the crops sector in 2009.

The other 54% of value added was from a variety of locally important crops. This diversity is a major asset in weathering downturns in a given commodity. Other crops are hay and forage, melons, fruits, vegetables, pecans, turfgrass and ornamental plants.



2010 Commodity Production

Commodity	Acres Harvested (thousands)	Production (thousands)	Value (thousand \$)
Rice	1,785	115,675 cwt.	1,330,263
Cotton (upland)	540	1,180 bales	395,914
Cottonseed		408 tons	71,400
Soybeans	3,150	110,250 bushels	1,245,825
Hay	1,480	2,681 tons	200,004
Wheat	150	8,100 bushels	42,120
Corn for Grain	380	57,000 bushels	267,900
Grain Sorghum	35	2,695 bushels	11,168
Oats	7	560 bushels	1,400
Sweet Potatoes	3	480 cwt.	6,624
Broilers		5,937,500 lbs.	2,861,875
Chicken Eggs		2,894,000 eggs	356,273
Turkeys		548,800 lbs.	340,256
Cattle and Calves		506,235 lbs.	433,233
Catfish (foodsize)		49,400 lbs.	38,038
Hogs and Pigs		86,432 lbs.	80,809
Pecans		1,000 lbs.	1,730
Blueberries	0.3	650 lbs.	1,157
Grapes	0.6	3,980 lbs.	1,613
Watermelon	1.3	338 cwt.	2,772
Tomatoes	1.1	187 cwt.	10,472
Peaches	1.2	5,660 lbs.	3,821
Honey		1,500 lbs.	2,205
Timber		19,956 tons	413,271
Turfgrass ^a	5.5	8.3 acres	16,392
Total	7,540		8,136,535

Source: National Agricultural Statistics Service, 2011, and Arkansas Forestry Commission, 2011.

^aSource: Census of Agriculture, data for 2007.

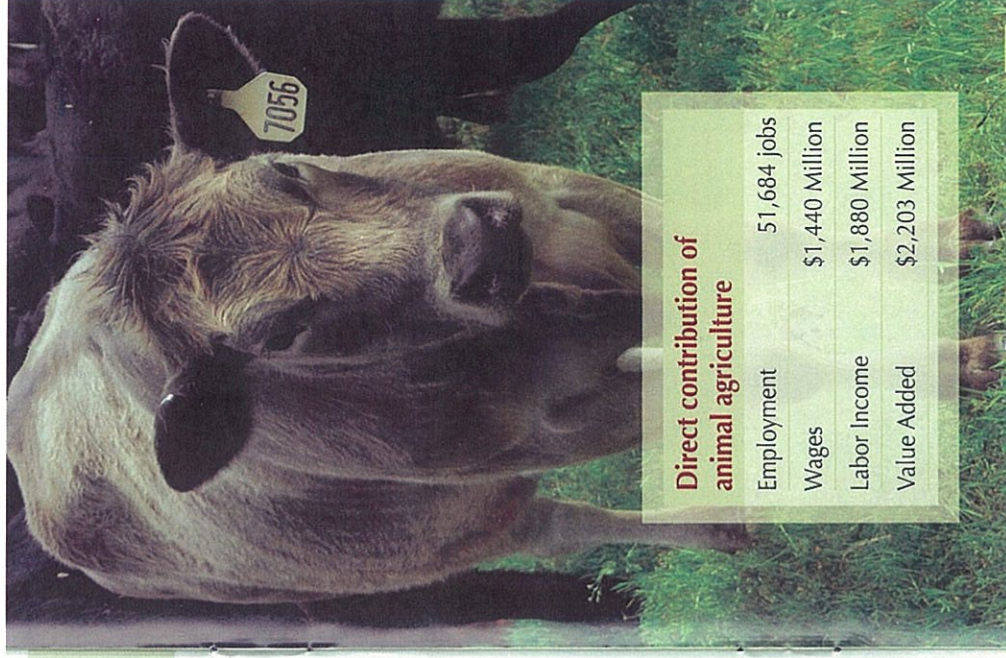
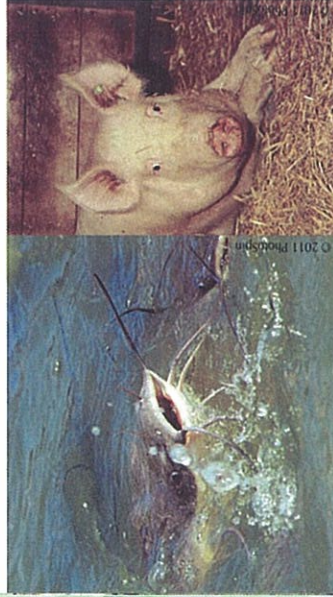
Direct Contribution

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	51,684 jobs
Wages	\$1,440 Million
Labor Income	\$1,880 Million
Value Added	\$2,203 Million

Direct Contribution — Animal Agriculture

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, 2011, inventory of 1,720,000 head. Of these, 1,064,000 were beef cows. The swine inventory for December 1, 2010, was 160,000 head. Foodsize catfish numbered 20,820,000 on January 1, 2011.

Source: National Agricultural Statistics Service, data for 2010 and 2011.



Direct contribution of poultry

Employment	38,213 jobs
Wages	\$1,150 Million
Labor Income	\$1,567 Million
Value Added	\$1,624 Million



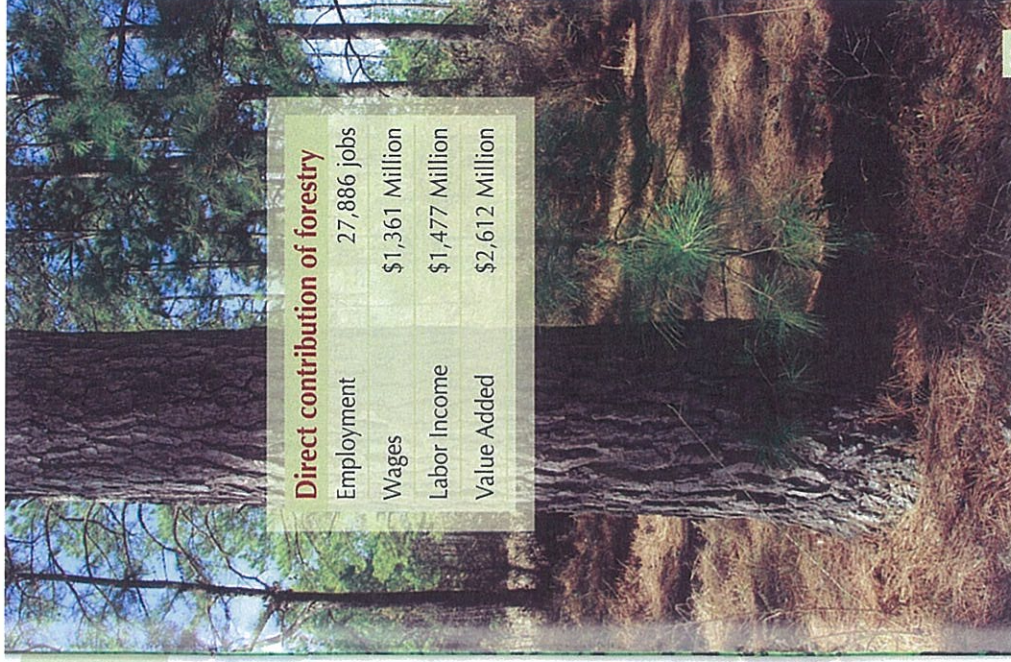
Direct Contribution

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; 29% loblolly and shortleaf pine; 11% oak and pine; 11% oak, gum and cypress; 5% elm, ash and cottonwood; and 3% other forest-type groups.

Source: USDA Forest Service Forest Inventory and Analysis, 2011.



Direct contribution of forestry

Employment	27,886 jobs
Wages	\$1,361 Million
Labor Income	\$1,477 Million
Value Added	\$2,612 Million

Direct Contribution — Forestry

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, paperboard mills, sawmills and wood preservation, and paperboard container manufacturing contribute:

- 47% of forestry jobs;
- Almost two-thirds of wages and income; and
- 64% of value added.

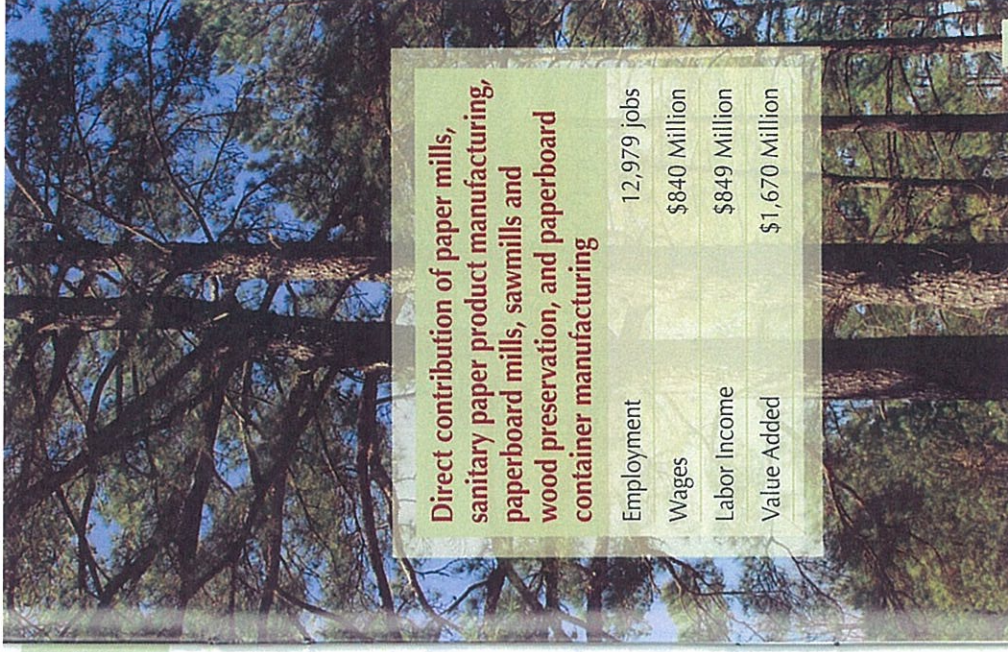
A Multifaceted Resource

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, paperboard mills, sawmills and wood preservation, and paperboard container manufacturing

Employment	12,979 jobs
Wages	\$840 Million
Labor Income	\$849 Million
Value Added	\$1,670 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.

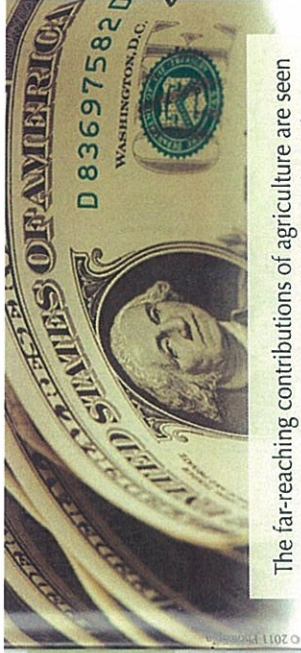
Employment generated by agriculture in top five NAICS industries

Manufacturing	78,573 jobs
Agriculture, Forestry, Fishing and Hunting	74,654 jobs
Retail Trade	15,264 jobs
Health and Social Services	14,829 jobs
Transportation and Warehousing	14,280 jobs
Top Five Total^a	197,599 jobs
(72% of all jobs generated by agriculture)	

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Accounts Data, 2011.

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

^aThe total does not equal the sum of the top five industries due to rounding.



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	\$5,712 Million
Agriculture, Forestry, Fishing and Hunting	\$2,723 Million
Wholesale Trade	\$1,460 Million
Real Estate and Rental	\$1,420 Million
Transportation and Warehousing	\$959 Million
Top Five Total	\$12,274 Million
(72% of all value added generated by agriculture)	

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Accounts Data, 2011.

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

Promoting Sustainable Farming Systems

New Poultry Vaccines in the Pipeline

The Division of Agriculture, in a joint project with Texas A&M University and the University of Guelph, has developed a series of patented or patent-pending vaccines to help control several economically important disease pathogens. Candidate vaccines target the avian influenza, or bird flu, virus, which has not been reported in the United States, and potentially foodborne bacteria such as *Salmonella*.

The research is directed by Billy M. Hargis, D.V.M., Ph.D., Diplomat of A.C.P.V. Hargis is holder of the Tyson Chair in Sustainable Poultry Health and director of the Division of Agriculture's J.K. Skeeles Poultry Health Laboratory in Fayetteville.

The research team has also developed a probiotic culture that decreases certain pathogens in live chickens. The product can be added to feed to reduce foodborne pathogens pre-slaughter.

The Poultry Health Laboratory's focus on preventing and treating poultry diseases has also produced a system to provide water and nutrients to chicks and poults during transport to reduce stress that can lead to health problems.

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 conducts life cycle assessments (LCAs) for various agricultural commodities including corn, cocoa, pork, cotton and dairy. These LCAs can be extremely complex, as in the case of the estimation of the carbon footprint of milk. Others, such as one study of cotton, used an index method to evaluate toxicity resulting from 80 cotton production practices involving the use of pesticides. The elegant simplicity of this approach allows for national comparisons of production practices and can be used as a screening tool before a more detailed analysis is undertaken.

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.

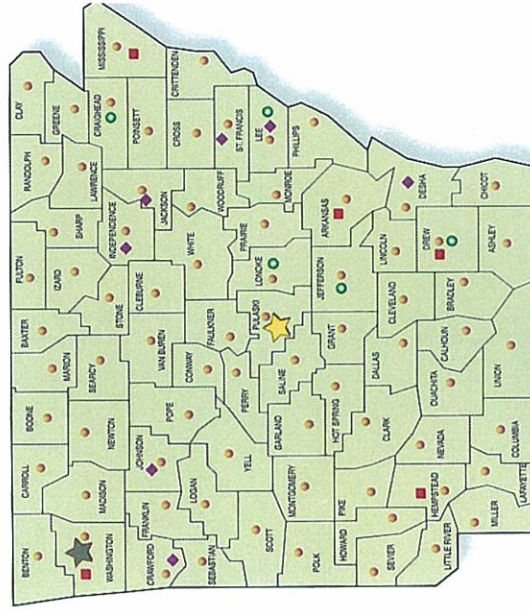
Our employees include Cooperative Extension Service faculty in all 75 counties, Agricultural Experiment Station scientists and Extension specialists on five university campuses and at five research and extension centers, and support personnel at seven research stations and five other units.



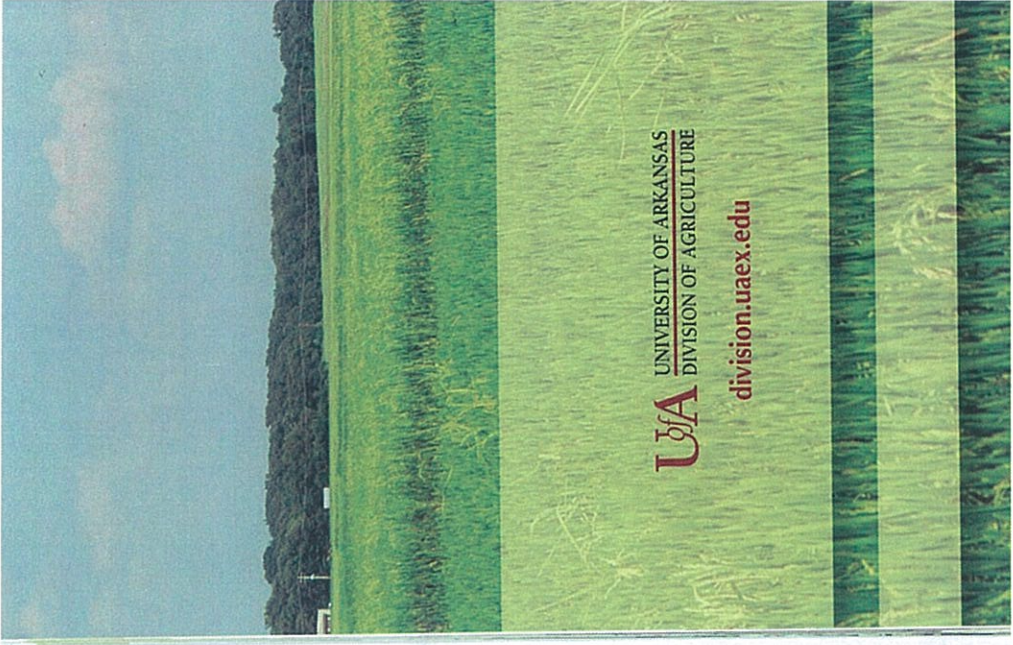
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Locations



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



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