POCKET FACTS 2025

Arkansas Agriculture Profile

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

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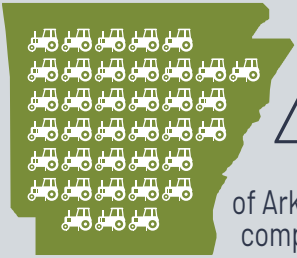
QUICK FACTS

Arkansas Agriculture contributed
14.2% of the state value added
WHICH IS APPROXIMATELY
$25.6 Billion in value added[a].



In 2024
41%
of Arkansas land was comprised of farms.

37,200 Farms on 13 6 million acres with an average farm size of 366 acres

57% of the state is comprised of forests[b]

= 1,000 FARMS

Source: IMPLAN, 2025; USDA NASS, 2025a; USDA FS, 2023
[a]2023 data is used. Value added includes labor income, plus indirect taxes and other property-type income generated by agricultural production, processing, and ag-related activities. Value added directly by food retail activities is excluded.
[b]This estimate is based on the most recent data available (2021) from the USDA Forest Service, collected as part of its rolling five-year forest inventory cycle.

QUICK FACTS

In 2024, Arkansas **average farm real estate value was $4,100 per acre.**

- Total farm real estate value: $55 8 billion
- Average cropland value: $3,600 per acre
  - -irrigated cropland: $4,200 per acre
  - -non-irrigated: $2,710 per acre
- Average pasture land value: $3,270 per acre

Organic production in Arkansas grew significantl from 2012 to 2017, with the number of farms selling organically produced commodities increasing from 32 to 69 From 2017 to 2022, the number of organic selling farms decreased slightly from 69 to 66 However, **the value of total organic product sales rose from $24.1M in 2017 to $69.9M in 2022.**

Source: USDA NASS, 2024a; USDA NASS, 2024b;

In 2023, Arkansas' top commodities

in terms of cash farm receipts[a] were:

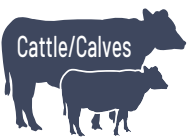
$5,568 Million

$2,313 Million

$1,553 Million

$885 Million

$792 Million



$791 Million

$628 Million

$535 Million

$389 Million[b]

Source: USDA ERS, 2025a; AFRC, 2025

[a]Cash farm receipt values do not include government payments received by farmers.

[b]Timber value is listed in terms of stumpage value paid to landowners for standing timber.

AHEAD OF THE CURVE

Arkansas consistently ranks in the
top one-third of the nation
for agricultural cash farm receipts

In 2023, Arkansas ranked
14th in the Nation
WITH
$13.8 BILLION[a]
for total agricultural cash receipts

- **No. 10 in animals and animal products**, valued at $8 0 billion
- **No. 16 in crops**, valued at $5 8 billion

Source: USDA ERS, 2025a

[a]This estimate represents only crop and animal production; the value of government payments and timber are excluded.

Arkansas is in the top 25 states in the production of the following agricultural commodities: **(2024 Production Year)**[a]

- **No. 1 in Rice**
- **No. 3 in Broilers**
- **No. 3 in Catfish (foodsize)**
- **No. 3 in Cotton (upland)**
- **No. 3 in Cottonseed**
- **No. 4 in Turkeys**
- **No. 7 in Peanuts**
- **No. 9 in Chicken Eggs**
- **No. 10 in Soybeans**
- **No. 11 in Beef Cows**[b]
- **No. 19 in Corn for Grain**
- **No. 20 in Hay**
- **No. 24 in Cattle & Calves**

Note: Beginning in 2016, the USDA no longer included data for blueberries, grapes, peaches, pecans, tomatoes, and watermelons in Arkansas, instead grouping them under an "other states" category due to limited production. In 2020, data collection for sweet potatoes and grain sorghum in Arkansas was also discontinued, followed by the removal of data for hogs, honey, and oats in 2024. As a result, annual rankings for these commodities are no longer available.

Source: USDA NASS, 2025b.

[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.

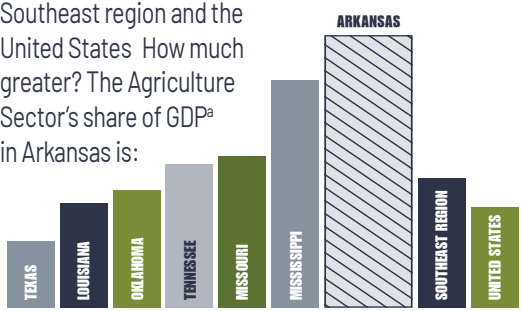
[b] Beef cows is a Jan. 1, 2024, inventory comprised of "beef cows that have calved" and "beef cow replacement heifers 500 pounds and over."

ARKANSAS COUNTS ON

ARKANSAS' AGRICULTURAL SECTOR is a vital and growing component of the state's economy.

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 Agriculture Sector's share of GDP[a] in Arkansas is:



The Agriculture Sector's Share of the State Economy

- 3 9 times greater than in Texas
- 2 6 times greater than in Louisiana
- 2 3 times greater than in Oklahoma
- 1 9 times greater than in Tennessee
- 1 8 times greater than in Missouri
- 1 2 times greater than in Mississippi
- 2 1 times greater than in the Southeast[b] region
- 2 7 times greater than in the US as a whole

Source: USDC BEA, 2025; Seo, F., 2025.

[a]Calculations based on the percent contribution of the Agriculture Sector to state GDP in 2023. GDP by state represents the market value of goods and services produced by the labor and property located in a state. GDP does not factor in the impact of subsidies and/or taxes on products, which are captured in value added estimates.

[b]The 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' contiguous states listed in the table.

Commodity Production and Value, 2024

Commodity	Acres Harvested (thousands)	Production (thousands)	Value (thousands)
Broilers[a]	N/A	7,561,300 LBS	$5,625,607
Soybeans	3,020	166,100 BU	$1,694,220
Rice	1,432	109,407 CWT	$1,476,995
Cattle & Calves	N/A	521,935 LBS	$824,908
Chicken Eggs[a]	N/A	3,896,700 EGGS	$824,208
Cotton (upland)[b]	640	1,788 BALES	$568,155
Corn for Grain	480	89,760 BU	$394,944
Hay	1,230	2,583 TONS	$374,535
Timber	N/A	21,300 TONS	$365,187
Turkeys[a]	N/A	512,500 LBS	$287,513
Cottonseed[b]	N/A	513 TONS	$117,477
Peanuts	44	242,000 LBS	$59,290
Wheat	85	4,760 BU	$26,894
Catfish (foodsize)	N/A	14,900 LBS	$16,303

Note: Beginning in 2016, the USDA no longer included data for blueberries, grapes, peaches, pecans, tomatoes, and watermelons in Arkansas, instead grouping them under an "other states" category due to limited production. In 2020, data collection for sweet potatoes and grain sorghum in Arkansas was also discontinued, followed by the removal of data for hogs, honey, and oats in 2024.

Source: USDA NASS 2025b; AFRC, 2025

[a]Total Poultry Industry (Broilers, Turkeys, and Chicken Eggs): $6,737M

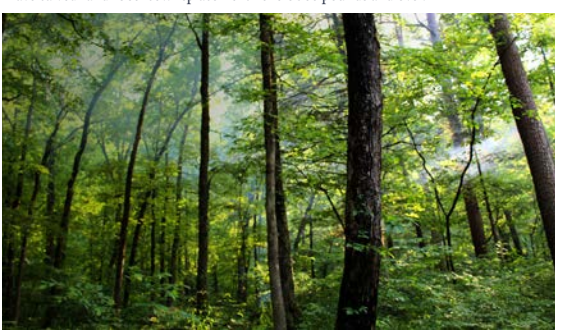
[b]Total Cotton Industry (Upland Cotton and Cottonseed): $686M

Five-Year Production Highs, 2020-2024

Commodity	Year	Production (thousands)
Beef Cows (inventory)[a]	2021	1,078 HEAD
Broilers	2024	7,561,300 LBS
Catfish (foodsize)	2024	14,900 LBS
Cattle & Calves	2024	521,935 LBS
Chicken Eggs	2021	4,259,300 EGGS
Corn for Grain	2021	152,720 BU
Cotton (upland)	2024	1,788 BALES
Cottonseed	2024	513 TONS
Hay	2020	2,614 TONS
Peanuts	2024	242,000 LBS
Rice	2024	109,407 CWT
Soybeans	2024	166,100 BU
Timber	2022	22,835 TONS
Turkeys	2020	566,400 LBS
Wheat	2023	9,405 BU

Source: 2025b; AFRC, 2025.

[a]Beef cows is a Jan. 1, 2024 inventory comprised of "beef cows that have calved" and "beef cow replacement heifers 500 pounds and over."



Release of the 2022 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 15 commodities [a]

Commodity	Value (thousands)	Rank
Baitfish	$29,172	1
Sport or Game Fish	$20,177	1
Crustaceans	$301	6
Rabbits, Live	$114	13
Greenhouse Fruits & Berries	$198	14
Equine	$23,326	16
Mules, Burros, Donkeys	$214	16
Other Aquaculture Products[b]	$137	17
Trout	$2,965	18
Meat Goats & Other Goats	$2,893	19
Sod Harvested	$23,200	20
Mushrooms	$404	22
Other Livestock Products[b]	$651	23
Flower Seeds	$14	23
Llamas	$24	25

Source: USDA, NASS, 2024b

[a]Rankings were estimated from values disclosed in the 2022 Census of Agriculture. Nondisclosure of values for some states may affect the ranking values shown in this table.

[b]Commodities denoted as "other" refer to an aggregation of products not having a specific code on the census report within their respective categories.

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

Additionally, the most recent Census of Agriculture indicates that Arkansas ranks in the top 25 states in acres harvested for the following 32 commodities [a]

Commodity	Acres Harvested	Rank
Sweet potatoes	6,370	5
Peas, southern (cowpeas)	814	6
Mulberries	13	6
Sorghum for syrup	4	7
Pecans, all	9,766	8
Blackberries and dewberries	642	8
Ginseng, cultivated only	2	8
Almonds	6	10
Okra	88	12
Sorghum for grain	8,984	13
Watermelons	1,506	14
Kiwifruit	1	14
Persimmons	44	15
Tomatoes in the open	798	16
Plums	57	16
Forage, all	1,343,016	18
Mustard greens	27	18
Figs	12	18
Pumpkins	1,410	19
Other noncitrus fruit [b]	10	19
Pawpaws	6	19
Escarole and endive	1	19

(continued on page 15)

(continued from page 14) Commodity	Acres Harvested	Rank
Chestnuts	107	21
Nectarines	16	21
Ginger root	1	21
Squash (including zucchini)	447	22
Cabbage, head	138	23
Walnuts, English	29	23
Elderberries	9	23
Peaches, Clingstone	87	24
Cucumbers and pickles	211	25
Collards	17	25

Source: USDA NASS, 2024b
[a]Rankings were estimated from values disclosed in the 2022 Census of Agriculture. Nondisclosure of values for some states may affect the ranking values shown in this table.
[b]Commodities denoted as "other" refer to an aggregation of products not having a specific code on the census report within their respective categories.

ARKANSAS AGRICULTURE

Arkansas' diverse portfolio of livestock products and crops supports the value of the Agriculture Sector

year in and year out In 2023, there were 37,400 farms in Arkansas (USDA NASS, 2025a) These farms generated a net farm income of $3 42 billion in infl tion-adjusted 2025 dollars (USDA ERS, 2025b)

For 2023, Arkansas ranked 14th in total agricultural exports with a value of $4 3 billion (USDA ERS, 2025c) Soybeans generated the highest export value for the state, bringing in $1 1 billion in 2023 That same year, Arkansas ranked in the top 10 in the nation for exports of seven commodities:

- **No. 1 in rice** (valued at $868 million)
- **No. 3 in cotton** (valued at $583 million)
- **No. 3 in broilers** (valued at $514 million)
- **No. 5 in other poultry** (valued at $138 million)
- **No. 10 in soybeans** (valued at $1 1 billion)
- **No. 10 in soybean meal** (valued at $288 million)
- **No. 10 in vegetable oils** (valued at $108 million)

SNAPSHOT

In 2023, Arkansas ranked 35th in overall GDP at $179 billion However, when looking at the share of GDP generated by agriculture, forestry, fishing, and hunting Arkansas ranked 8th overall in the nation (USDC BEA, 2025) In terms of agricultural cash farm receipts in 2023, Arkansas ranked 14th with a value of $13 8 billion, contributing 2 5% to the U S total cash farm receipt value Arkansas ranked 10th in total crop cash farm receipts at $8 0 billion and 16th in total livestock cash receipts at $5 8 billion (USDA ERS, 2025a)

In terms of value, Arkansas' top two commodities for 2023 were broilers and soybeans Bringing in $5 6 billion, broiler production represented 40 4% of all agricultural cash farm receipts in the state At $2 3 billion, soybeans contributed 16 8% to total Arkansas cash farm receipts in 2023 Rice also had a large contribution with 11 3% of total agricultural cash receipts ($1 5 billion) for Arkansas

ARKANSAS AGRICULTURE

On the national level, Arkansas ranked no 1 in rice and number 3 in broilers in the country, with cash receipts comprising 42 2% and 12 5%, respectively, of the U S total cash farm receipts for these commodities in 2023

Arkansas' total cash farm receipt value decreased 9 2% between 2022 and 2023[a] The animals and animal products sector saw a 14 2% drop in value, largely due to lower poultry and egg prices, while the crops sector experienced an overall loss in value of 1 4% during this time

On the crop side, wheat saw the greatest gain, with cash farm receipt value increasing by 42 4% between 2022 and 2023 Cotton lint (upland), peanuts, rice,

[a]Percentage comparisons between 2022 and 2023 values are based on real 2025 dollars. That is, our numbers are adjusted for inflation, which allows for a true "apples to apples" comparison.

and hay also showed increases in value, growing by 39 2%, 15 0%, 11 5%, and 10 7%, respectively Meanwhile, the cash farm receipt values for soybeans, corn, cottonseed, and oats decreased by 11 3%, 13 7%, 20 8%, and 48 3%, respectively

On the animal production side, cattle and calves was the only sector to show growth in cash receipt value, with an increase of 20 9% between 2022 and 2023 Wool remained unchanged (0 0%), while all other animal sectors showed a decline in cash receipt value over the same period These include: all other animals and products (-0 2%), mohair (-6 7%), honey (-10.7%), chicken eggs (-10.8%), catfish (-11.0%), hogs (-13 3%), turkeys (-15 4%), broilers (-18 1%), and farm chickens (-26 3%)

ECONOMIC CONTRIBUTION

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

- **Direct Contributions** are generated by production and processing of crops, poultry, livestock and forest products

- **Indirect Contributions** result when agricultural firms pu chase 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 salaries and wages within Arkansas

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,

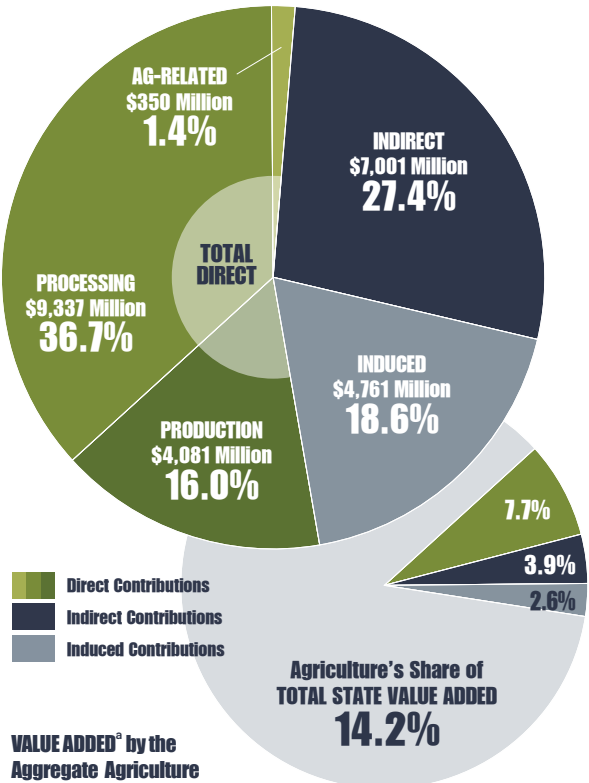
lawn and garden centers, etc) are not considered part of the Aggregate Agriculture Sector, but some of the economic activity of these industries and other retail stores and input providers is picked up as indirect and induced effects and included in the total contribution

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

- **Jobs** include all wage and salary employees, as well as self-employed workers in a given sector
- **Labor Income** consists of proprietary income – which includes all income received by self-employed individuals – and 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

ECONOMIC CONTRIBUTION



VALUE ADDED[a] by the Aggregate Agriculture Sector in Arkansas, 2023

Source: IMPLAN, 2025; Seo, F., 2025. Note: Presented in 2023 dollars.
[a]Value added is the sum of employee compensation, proprietary income, other property type income and indirect business taxes. This includes contributions generated by agricultural production and processing, but excludes retail sales. Government payments are included.

OF AGRICULTURE

Agriculture contributes about
$25.6 Billion in value added
WHICH IS APPROXIMATELY

1 in 7
every
VALUE ADDED DOLLARS

and provides over 248,000 jobs
IN ARKANSAS

ECONOMIC CONTRIBUTION

Agriculture and associated agricultural activities are major contributors to the Arkansas economy. The total economic contribution of Arkansas' Aggregate Agriculture Sector includes all direct, indirect, and induced effects generated through agricultural production, processing, and agriculture-related activities within the state

Total Contribution of Arkansas Agriculture, 2023

- **248,201 Jobs** — 1 out of 7 Arkansas jobs
- **$11,636 Million in Wages** — 12 7% of the state total
- **$14,586 Million in Labor Income** — 14 4% of the state total
- **$25,570 Million in Value Added** — $1 out of $7 in Arkansas

Source: IMPLAN, 2025; Seo, F., 2025.

Value Added Contributions

Value Added By the Aggregate Agricultural Sector in AR, 2023			
Contribution Area	**Value[c]** (Millions)	**% of Total Contribution**	**% of State Total**
Direct	$13,809	54 0%	7 7%
Indirect	$7,001	27 4%	3 9%
Induced	$4,761	18 6%	2 6%
TOTAL	$25,570	100 0%	14 2%

The far-reaching contributions of agriculture are seen in the distribution of Value Added[a] throughout the economy

Value Added Generated by Ag in Top Five NAICS Industries[b]	
Industry	**Value[c]** (Millions)
Manufacturing	$9,520
Agriculture, Forestry, Fishing, and Hunting	$4,431
Wholesale Trade	$2,704
Transportation and Warehousing	$1,470
Real Estate Rental and Leasing	$1,428
Top Five Total	$19,552
(76 5% of all Value Added generated by Agriculture)	

Source: IMPLAN, 2025; Seo, F., 2025.

[a]Value added is the sum of employee compensation, proprietary income, other property type income and indirect business taxes. This includes contributions generated by agricultural production and processing, but excludes retail sales.

[b]Groupings based on the U.S. Census Bureau's 2-digit North American Industry Classification System (NAICS) aggregation.

[c]Due to rounding, the totals may not precisely reflect the sum of the individual values.

ECONOMIC CONTRIBUTION

Employment Contributions

Employment By the Aggregate Agricultural Sector in AR, 2023			
Contribution Area	Jobs	% of Total Contribution	% of State Total
Direct	145,552	58 6%	8 2%
Indirect	54,530	22 0%	3 1%
Induced	48,119	19 4%	2 7%
TOTAL	248,201	100 0%	14 0%

Arkansas' Aggregate Agriculture Sector generates employment in all 20 industries in the North American Industry Classific tion System (NAICS) used for economic analysis

Jobs Generated by Ag in Top Five NAICS Industries[a]	
Industry	Jobs
Manufacturing	80,818
Agriculture, Forestry, Fishing and Hunting	65,565
Transportation and Warehousing	16,321
Wholesale Trade	11,656
Health Care and Social Assistance	11,584
Top Five Total	185,943
(74 9% of all Jobs generated by agriculture)	

Source: IMPLAN, 2025; Seo, F., 2025.
[a]Groupings based on the U.S. Census Bureau's 2-digit North American Industry Classification System (NAICS) aggregation.

Labor Income Contributions

Labor Income By the Aggregate Agricultural Sector in AR, 2023			
Contribution Area	**Value**[b] (Millions)	**% of Total Contribution**	**% of State Total**
Direct	$8,487	58 2%	8 4%
Indirect	$3,767	25 8%	3 7%
Induced	$2,331	16 0%	2 3%
TOTAL	$14,586	100 0%	14 4%

Value is further spread throughout the economy by the spending of labor income by individuals whose jobs are upheld by agriculture

Labor Income Generated by Ag in Top Five NAICS Industries[a]	
Industry	**Value**[b] (Millions)
Manufacturing	$5,202
Agriculture, Forestry, Fishing, and Hunting	$3,349
Wholesale Trade	$1,077
Transportation and Warehousing	$1,000
Health Care and Social Assistance	$760
Top Five Total	$11,389
(78 1% of all Labor Income generated by Agriculture)	

Source: IMPLAN, 2025; Seo, F., 2025.

[a]Groupings based on the U.S. Census Bureau's 2-digit North American Industry Classification System (NAICS) aggregation.

[b]Due to rounding, the totals may not precisely reflect the sum of the individual values.

Precision ag can aid in farm survival

In working with Arkansas farmers, Extension Irrigation Instructor Mike Hamilton is showing that a little precision can go a long way At a time when farm bankruptcies are rising and commodity prices are not, any tactics that can save on input costs such as diesel, pest management chemicals and fertilizer can help farmers stay above water

Hamilton works with growers to implement precision agriculture techniques – such as moisture sensors, surge valves, multiple-inlet rice irrigation and digital decision tools related to use of polypipe – to save water and the diesel that drives the irrigation pumps

"If I can save 10-15 percent on their diesel or their labor, growers start realizing what technology can do," Hamilton said "And that's at the low end If they incorporate two or more of these technologies, they're up to 25 percent savings or more That's 25 percent less fuel and 25 percent less groundwater "

Surge irrigation uses computerized and mechanized methods to improve the uniformity of water entering the soil in a furrow irrigation system.

& RURAL SUSTAINABILITY

It all starts with measuring the irrigation fl w and elevation of their fields. Kn wing all the highs and lows – thanks to drones and GPS – enables growers to design an irrigation plan that produces healthy yields while saving money

The moisture sensors enable a grower to know what fields need ater and how much their crop needs at various growth stages A surge valve enables growers to control the amount of water applied to each fiel , and includes a soaker mode to prevent overwatering All of this can now be done from a farmer's phone

It's a far cry from past decades when farmers were having to make some educated guesses about moisture using 30-year water-use charts

"Those sensors have really opened up a lot of farmers' eyes," Hamilton said "That technology is letting them

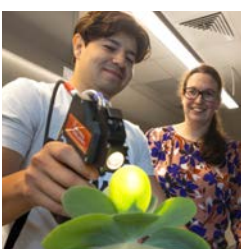
Hamilton installs soil moisture sensors with telemetry allowing farmers to monitor crop irrigation needs.

see what their crop is using and the depths at which it is using that water It lets them see where and how deep an irrigation goes into the soil profil ."

Hamilton said these technologies have the power "to get farmers another year; another 10 years to keep that farm family productive "

Hyperspectral

Aurelie Poncet, assistant professor of precision agriculture, is working with a system that uses wavelengths beyond visible light to measure herbicide response in weeds Weed



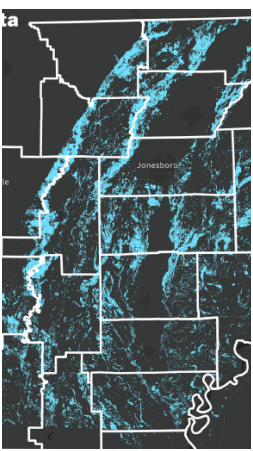
Aurelie Poncet and graduate student Mario Soto demonstrate hyperspectral equipment used in a study to measure herbicide effectiveness on plants.

scientists are trained to rate herbicide effic y within a 10 percent margin of error, plus or minus 5 percent The researchers used machine learning models on data collected with a spectroradiometer to reach a margin of error of 12 1 percent Their goal is to get below 10 percent

Satellites and space lasers

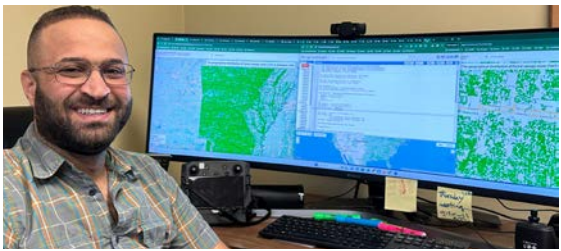
Jason Davis, assistant professor and state extension specialist, remote sensing and pesticide application, recently used satellite imagery to gauge the damage caused by extensive flooding in northeastern Arkansas in the spring of 2025

For his analysis, Davis downloaded imagery of 11 million acres in Arkansas' Delta The images are multispectral, so in addition to visible light, he has near-infrared images which can be used to "show very clearly where the water is "



Satellite imagery showing the extent of flooding in the Arkansas Delta in April 2025.

PROMOTING AGRICULTURAL



Hamdi Zurqani developed the first high-resolution forest canopy cover dataset for an entire state, providing valuable insights for forest management and conservation.

The satellite imagery was paired and validated against ground observations made by extension agents

Hamdi Zurqani, a geospatial scientist with the University of Arkansas at Monticello, published research showing how information from open-access satellites can be integrated on Google Earth Engine with artificia intelligence algorithms to quickly and accurately map large-scale forest aboveground biomass, even in remote areas where on-the-ground accessibility is often an issue

Being able to measure biomass is key to understanding how much carbon is retained or released in the forest Zurqani uses data from NASA's Global Ecosystem Dynamics Investigation LiDAR, also known as GEDI

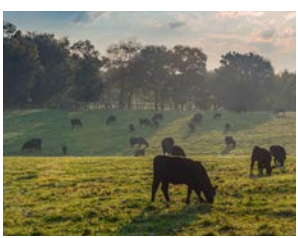
& RURAL SUSTAINABILITY

LiDAR, which includes three lasers installed on the International Space Station The system can precisely measure three-dimensional forest canopy height, canopy vertical structure and surface elevation LiDAR stands for "light detection and ranging" and uses light pulses to measure distance and create 3D models Zurqani works in the Arkansas Forest Resources Center, part of the Division of Agriculture's research arm, the Arkansas Agricultural Experiment Station

Precision ag in livestock

Use of precision ag tools isn't limited to plant crops GPS, genomic testing and wearable sensors are making a difference in the livestock industry

With herds spread out over a lot of acres, GPS is a significant ool with multiple uses. "GPS tracking technology is being adopted to extensive rangelands making it easier to locate the herd for welfare checks and movement," said Shane Gadberry, who heads the agriculture and natural resources



PROMOTING AGRICULTURAL

GPS guidance helps farmers track chemical and fertilizer applications in fields and pastures.

department for the Cooperative Extension Service

"Similar to row crops, use of GPS guidance in chemical and fertilizer applications in pastures and hay fields is bein adopted to minimize costs or reduced effectiveness associated with overlaps and skips "

Genomic testing and genomic enhanced breeding values bring a deeper dimension for ranchers looking to breed the best stock

"In the past, breeding decisions for economically important traits were pedigree based," Gadberry said "Today, genomic testing is being used to improve the accuracy of breeding decisions, giving breeders a more accurate way to determine the animal's genetic potential, rather than relying solely on parentage or physical characteristics "

Remote sensors are allowing livestock producers to have eyes on stock at all times "Environmental sensors

are being used in barns for environmental monitoring and control automation such as temperature, ventilation and lighting," Gadberry said "Wearable sensors are being used for reproductive and welfare monitoring of livestock "

Electronic identific tion tags are not only being used to track inventory and livestock movement but also for precision feeding and feed consumption monitoring

Managing the data

Sensors are good at collecting data, but how do you manage and interpret it? That's where Aranyak Goswami, assistant professor and bioinformatics specialist, comes in. Like putting together a jigsaw puzzle from millions of small pieces, Goswami

Aranyak Goswami's mission is corral data collected from sensors and get it to reveal insights.

implements data analysis tactics to make sense of data generated from complex research like genetic sequencing. The field kn wn as bioinformatics, or computational biology, links biological data with information storage, distribution and analysis to support many scientific esearch areas.

"One of my main interests will be to explore microbiomes to improve cattle and poultry health," Goswami said "There are a lot of genomes which are coming out that need to be sequenced, and there are several gaps in this fiel ."

Genome sequencing is a method used to determine the entire genetic makeup of a specific o ganism to fin comparative changes in the genome

AI and genomics

Sam Fernandes, assistant professor of agricultural statistics and quantitative genetics, and Igor Fernandes, statistics and analytics

Genomics are important in research to help rice weather high nighttime temperatures.

master's student, have worked out a new machine- learning model for predicting crop yield using genetic information and environmental data that can be used to develop new, higher-performing crop varieties

Sam Fernandes 's student Igor Fernandes found a way to more quickly predict crop yields.

The simpler model took less time for the computer to process, and the mean prediction accuracy improved 7 percent over the established model The experiment was validated in three scenarios typically encountered in plant breeding

"One of the unique things that Igor did is how he processed the environmental data," Sam Fernandes said "There are fancier models that people can throw in all sorts of information But what Igor did is a simple, yet efficient ay of combining the genetic and environmental data using feature engineering to process the information and get a summary of variables that is more informative "

Agriculture's Contribution Across the U.S.

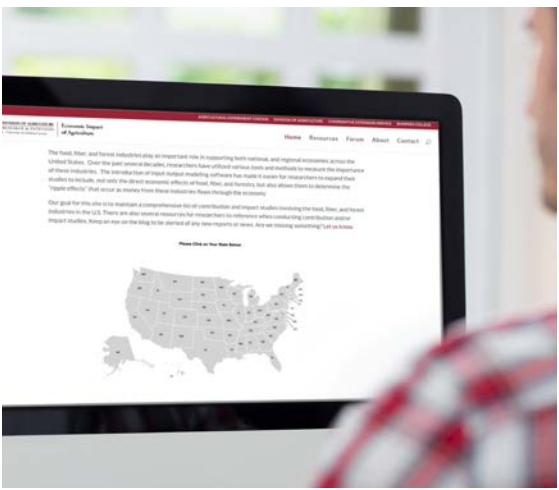
Economic impact and contribution analyses are an increasingly popular method for illustrating the importance of food, fibe , and forestry to state and local economies In 2015, Division of Agriculture researchers conducted a survey of agricultural economists which showed vast differences in methods used to conduct contribution studies The survey results suggested a need for further discussion, as well as the development of additional resources to aid researchers in conducting these types of studies

Division of Agriculture researchers have taken the lead in opening this discussion and are working to develop resources for enhancing the consistency and clarity of contribution of agriculture research To provide a central location for ongoing discussion and research, they have launched a website called The Economic Contributions and Impacts of U S Food, Fiber, and Forest Industries

The website contains a list of known contribution and impact studies involving the food, fibe , and forest

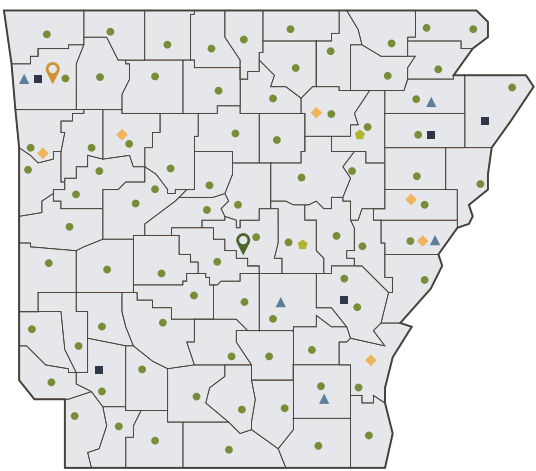
industries in the U S There are also several resources for researchers to reference It can be found by visiting **economic-impact-of-ag.uada.edu.**

To list your study on our website, join discussions on developing common methodologies for agricultural contribution studies, or for questions about the data, please email Frank Seo at fseo@uada edu



ARKANSAS IS OUR CAMPUS

The U of A System Division of Agriculture conducts research and extension programs to support Arkansas agriculture in its broadest definitio . Our employees include Cooperative Extension Service personnel in all 75 counties and Agricultural Experiment Station scientists, extension specialists and support personnel on three university campuses, at fi e research and extension centers, six research stations, and two extension centers



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

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NOTES:

DIVISION OF AGRICULTURE

RESEARCH & EXTENSION

University of Arkansas System

University of Arkansas System
Division of Agriculture
2404 North University Avenue
Little Rock, Arkansas 72207
(501) 686-2540
www.uada.edu

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