Economic Importance of Agriculture and Forestry in Arkansas

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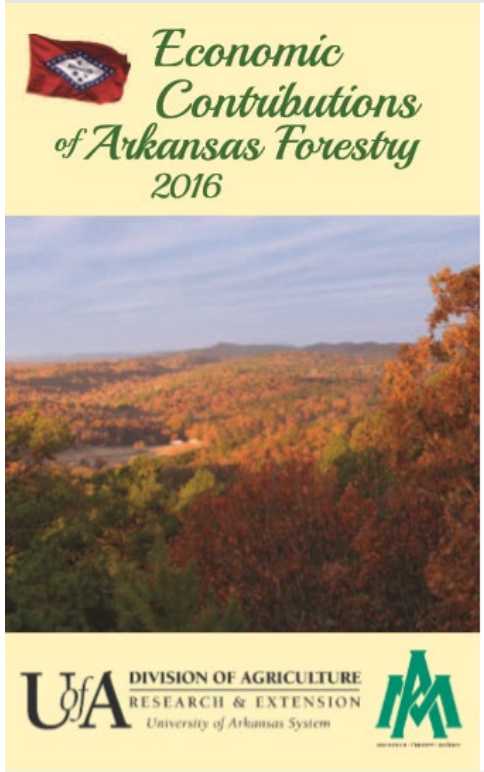
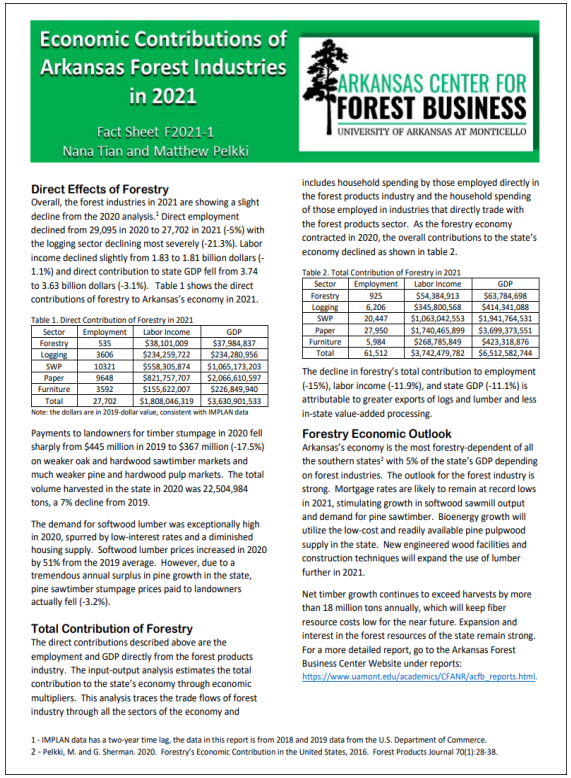
Economic Impact of Agriculture

https://economic-impact-of-ag.uada.edu

Arkansas Center for Forest Business





Economic Contributions of Arkansas Forest Industries in 2021

Fact Sheet F2021-1

Nana Tian and Matthew Pelkki

ARKANSAS CENTER FOR FOREST BUSINESS
UNIVERSITY OF ARKANSAS AT MONTICELLO

Direct Effects of Forestry

Overall, the forest industries in 2021 are showing a slight decline from the 2020 analysis.[1] Direct employment declined from 29,095 in 2020 to 27,702 in 2021 (-5%) with the logging sector declining most severely (-21.3%). Labor income declined slightly from 1.83 to 1.81 billion dollars (-1.1%) and direct contribution to state GDP fell from 3.74 to 3.63 billion dollars (-3.1%). Table 1 shows the direct contributions of forestry to Arkansas's economy in 2021.

Table 1. Direct Contribution of Forestry in 2021

Sector	Employment	Labor Income	GDP
Forestry	535	$38,101,009	$37,984,837
Logging	3606	$234,259,722	$234,280,956
SWP	10321	$558,305,874	$1,065,173,203
Paper	9648	$821,757,707	$2,066,610,597
Furniture	3592	$155,622,007	$226,849,940
Total	27,702	$1,808,046,319	$3,630,901,533

Note: the dollars are in 2019-dollar value, consistent with IMPLAN data

Payments to landowners for timber stumpage in 2020 fell sharply from $445 million in 2019 to $367 million (-17.5%) on weaker oak and hardwood sawtimber markets and much weaker pine and hardwood pulp markets. The total volume harvested in the state in 2020 was 22,504,984 tons, a 7% decline from 2019.

The demand for softwood lumber was exceptionally high in 2020, spurred by low-interest rates and a diminished housing supply. Softwood lumber prices increased in 2020 by 51% from the 2019 average. However, due to a tremendous annual surplus in pine growth in the state, pine sawtimber stumpage prices paid to landowners actually fell (-3.2%).

Total Contribution of Forestry

The direct contributions described above are the employment and GDP directly from the forest products industry. The input-output analysis estimates the total contribution to the state's economy through economic multipliers. This analysis traces the trade flows of forest industry through all the sectors of the economy and includes household spending by those employed directly in the forest products industry and the household spending of those employed in industries that directly trade with the forest products sector. As the forestry economy contracted in 2020, the overall contributions to the state's economy declined as shown in table 2.

Table 2. Total Contribution of Forestry in 2021

Sector	Employment	Labor Income	GDP
Forestry	925	$54,384,913	$63,784,698
Logging	6,206	$345,800,568	$414,341,088
SWP	20,447	$1,063,042,553	$1,941,764,531
Paper	27,950	$1,740,465,899	$3,699,373,551
Furniture	5,984	$268,785,849	$423,318,876
Total	61,512	$3,742,479,782	$6,512,582,744

The decline in forestry's total contribution to employment (-15%), labor income (-11.9%), and state GDP (-11.1%) is attributable to greater exports of logs and lumber and less in-state value-added processing.

Forestry Economic Outlook

Arkansas's economy is the most forestry-dependent of all the southern states[2] with 5% of the state's GDP depending on forest industries. The outlook for the forest industry is strong. Mortgage rates are likely to remain at record lows in 2021, stimulating growth in softwood sawmill output and demand for pine sawtimber. Bioenergy growth will utilize the low-cost and readily available pine pulpwood supply in the state. New engineered wood facilities and construction techniques will expand the use of lumber further in 2021.

Net timber growth continues to exceed harvests by more than 18 million tons annually, which will keep fiber resource costs low for the near future. Expansion and interest in the forest resources of the state remain strong. For a more detailed report, go to the Arkansas Forest Business Center Website under reports: https://www.uamont.edu/academics/CFANR/acfb_reports.html.

1 - IMPLAN data has a two-year time lag, the data in this report is from 2018 and 2019 data from the U.S. Department of Commerce.
2 - Pelkki, M. and G. Sherman. 2020. Forestry's Economic Contribution in the United States, 2016. Forest Products Journal 70(1):28-38.

https://www.uamont.edu/academics/CFANR/acfb.html

Arkansas Agriculture Profile

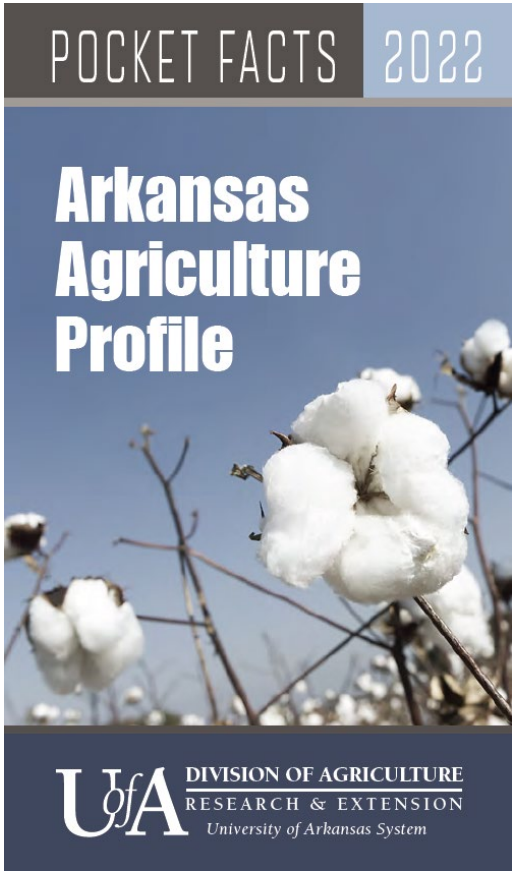
Pocket Facts Booklet

DIVISION OF AGRICULTURE
RESEARCH & EXTENSION
University of Arkansas System

Center for Agricultural and Rural Sustainability

Agriculture Profile Topics

- Ag Commodity Production and Value
- 5-Year Production Highs
- Census of Agriculture Highlights
- Annual Agriculture Snapshot
- Economic Contributions of Ag
- Promoting Agricultural and Rural Sustainability



Ahead of the Curve

In 2020, Arkansas ranked 15th in the nation with

$8.2 BILLION

in total farm level cash receipts

 # 13 in animal agriculture

#16 in crop production

Top Ag Commodities, 2020 Farm Level Cash Receipts

Broilers
$2,682 million

Soybeans
$1,565 million

Rice
$1,118 million

Chicken Eggs
$568 million

Corn
$516 million

Cotton Lint
$476 million

Cattle & Calves
$426 million

Turkeys
$422 million

Timber
$368 million

National Rankings, 2021

#1 in Rice

#2 in Broilers

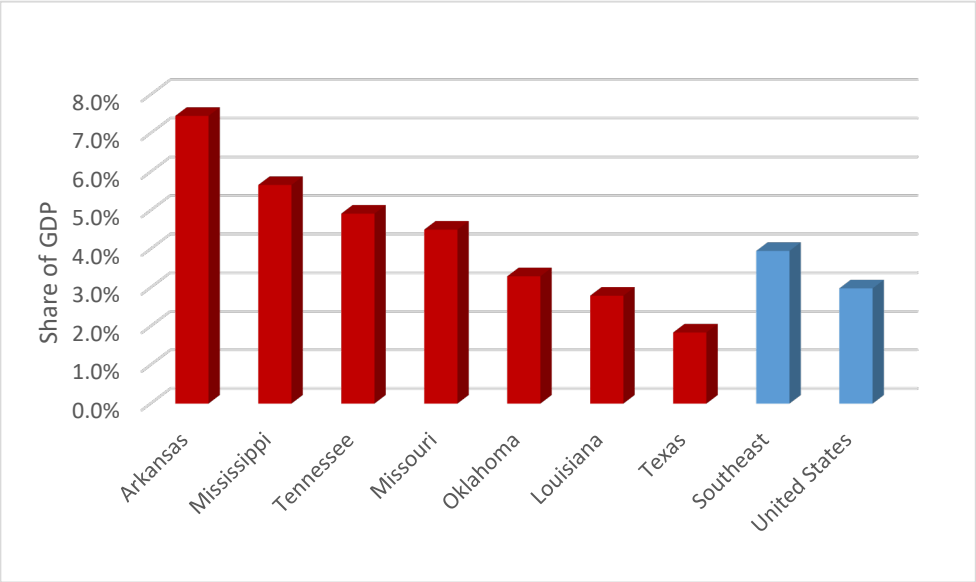
#3 in Catfish

#4 in Cotton Lint & Cottonseed

 # 5 in Turkeys

Share of State GDP

Agricultural Production and Processing represents more than **7%** of total **GDP** in Arkansas.



Agriculture's relative importance to state GDP in Arkansas is:

4.0 times greater than in Texas
2.7 times greater than in Louisiana
2.3 times greater than in Oklahoma
1.7 times greater than in Missouri
1.5 times greater than in Tennessee
1.3 times greater than in Mississippi
1.9 times greater than for the Southeast Region
2.5 times greater than for the US as a whole

How does agriculture create value in other parts of the economy?

"Ripple Effects"

“Ripple Effects”

Direct Effects – jobs and value from agriculture sector

Indirect Effects – jobs and value from industries that supply the ag sector

Induced Effects – jobs and value from industries that serve workers

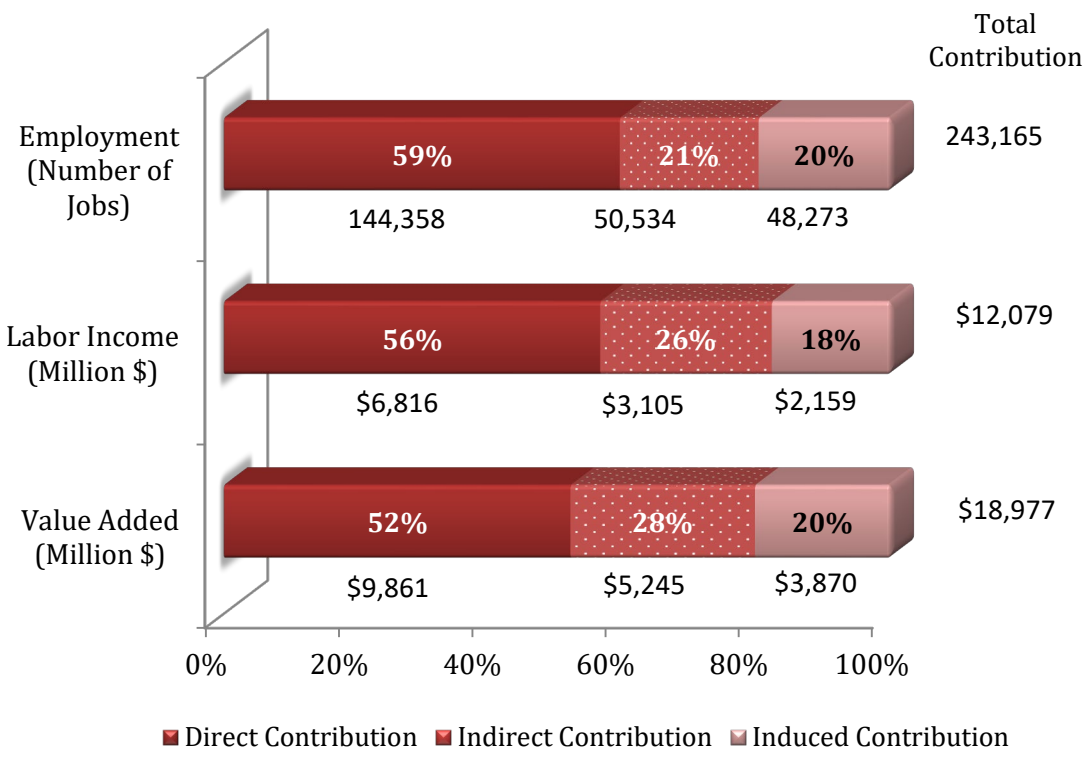
What happens when a major industry shuts down?

Paper Mill's Closure Saps the Economy of Arkansas Town

https://www.latimes.com/archives/la-xpm-2001-mar-02-fi-32251-story.html

- Real Estate
- Restaurants
- Education

Economic Contribution of Ag



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 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 salaries and wages within Arkansas.

Economic Contribution of Ag

Employment 243,165 jobs (1 out of 7 Arkansas jobs)
Labor Income $12,079M (14.6% of Arkansas labor income)
Value Added $18,977M ($1 out of $7 Arkansas value added)

Economics of prescribed burns?

Economics of Prescribed Burns

Row Crop Burning

- "Farmers have argued for years it is efficient and economical control method for preparing fields for the next growing season and eliminating pests and diseases. " – Talkbusiness.net
  - https://talkbusiness.net/2020/09/row-crop-burning-set-to-begin-in-northeast-arkansas/

AGRICULTURE NEWS BRIEFS

Row crop burning set to begin in Northeast Arkansas

by George Jared (gjared@talkbusiness.net) September 29, 2020 6:23 pm 1,315 views

Economics of Prescribed Burns

Maintenance of Wildlife Habitat – Brooks Willhoite AFC

- "Fire is still one of the most efficient and cost-effective ways to create and regulate wildlife habitat when done properly,"
- "It's only about $32 per acre for us to conduct burns like this, and that includes all of the technical assistance, planning for weather, materials and heavy equipment needed to create firebreaks and prevent the fire from escaping."
  - https://www.agfc.com/en/news/2019/02/20/agfc-and-afc-partner-with-local-landowner-to-benefit-habitat-through-prescribed-fire/

AGFC and AFC partner with local landowner to benefit habitat through prescribed fire

Feb. 20, 2019

Randy Zellers Assistant Chief of Communications

Economic Value of Nature

Hunting / Fishing:

- Revenues from licenses

Nature Tourism:

- Revenues from national park or state forest visitation
  - National Park Service economic contribution studies
    - How does the presence of a national park affect the regional economy

Ecosystem services:

- Preservation of soil, water, air quality, biodiversity, etc.
  - $1,090 per acre (Tomalty, 2012)
- Carbon Sequestration
  - $40 - $50 per ton of carbon
  - "Controlled burning of natural environments could help offset our carbon emissions" – University of Cambridge (2021)

Economics of Prescribed Burns

Wildfire Prevention:

- https://www.fs.fed.us/rm/pubs/rmrs_gtr292/2003_fernandes.pdf

CSIRO PUBLISHING

www.publish.csiro.au/journals/ijwf *International Journal of Wildland Fire*, 2003, **12**, 117–128

A review of prescribed burning effectiveness in fire hazard reduction

Paulo M. Fernandes[A,B] *and Herminio S. Botelho*[A]

Prescribed fire was the most effective technique, and under severe weather conditions reduced the average fireline intensity of a wildfire by 76% and its burned area by 37%, avoiding manifestations of severe fire behaviour.

Economics of Prescribed Burns

Wildfire Prevention:

- https://www.nature.com/articles/s41893-020-00646-7

Analysis | Published: 07 December 2020

Economic footprint of California wildfires in 2018

Daoping Wang, Dabo Guan, Shupeng Zhu, Michael Mac Kinnon, Guannan Geng, Qiang Zhang, Heran Zheng, Tianyang Lei, Shuai Shao, Peng Gong & Steven J. Davis

Nature Sustainability **4**, 252–260 (2021) | Cite this article

- Wildfire damages totaled $148.5 billion (1.5% of California's gross GDP)
  - Capital Losses = $27.7 billion (costs to repair and rebuild damaged or destroyed assets)
  - Health Costs = $32.2 billion (medical expenses and lost work time related to air pollution)
  - Indirect Losses = $88.6 billion (economic disruptions to other industries)
- "Our results reveal that the majority of economic impacts… may be indirect and often affect industry sectors and locations distant from the fires."

What is the economic impact of wildfires in Arkansas?

Economic Impact of Wildfires

What is the potential economic impact of wildfires in Arkansas?

ASSUMPTIONS:

- **Loss in value of timber production ONLY**
  - ~ **$80/acre** (AR DFA – Timberland valuation for property tax purposes, 2022) https://www.arkansasassessment.com/media/1364/2022-agricultural-report.pdf
- **Hypothetical Timber Loss**:
  - 1,500 acres (Grant County – April 2022)
  - 5,000 acres (Low Estimate – 2017)
  - 25,000 acres (Average Estimate 2008-2017)
  - 2.5 million acres (No Regulation or Management – 1929 Estimate)

Economic Impact of Wildfires

Acres Burned	1,500	5,000	25,000	2,500,000
Value of Timber Loss	**$ (120,000)**	**$ (400,000)**	**$ (2,000,000)**	**$ (200,000,000)**
Employment Impact				
Direct	-1	-5	-24	-2361
Indirect	0	-1	-6	-597
Induced	-1	-2	-9	-860
Total	***-2***	***-8***	***-38***	***-3817***
Labor Income Impact				
Direct	$ (86,390)	$ (287,967)	$ (1,439,836)	$ (143,983,621)
Indirect	$ (13,543)	$ (45,143)	$ (225,715)	$ (22,571,464)
Induced	$ (24,015)	$ (80,049)	$ (400,243)	$ (40,024,264)
Total	***$ (123,948)***	***$ (413,159)***	***$ (2,065,793)***	***$ (206,579,350)***
Lost Revenues				
Direct	$ (120,000)	$ (400,000)	$ (2,000,000)	$ (199,999,990)
Indirect	$ (17,906)	$ (59,686)	$ (298,430)	$ (29,843,025)
Induced	$ (73,536)	$ (245,121)	$ (1,225,604)	$ (122,560,419)
Total	***$ (211,442)***	***$ (704,807)***	***$ (3,524,034)***	***$ (352,403,434)***

Key Take-Aways

- Agriculture plays a large role in the maintaining the state's economy.
  - Direct, indirect, induced effects
- Prescribed burning activities may help reduce costs for farmers and foresters
  - Reductions in chemical / machinery use & labor costs
- Burning activities may help reduce costs for wildlife habitat management
  - Increase revenues generated from nature-based activities
  - Intangible benefits from improved ecosystems
- Prevention of wildfires can provide broad economic and social benefits.

How to Reach Us

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Questions?

How resilient is the ag sector in Arkansas?

Economic Impact of COVID-19

Economic Contribution of Ag

Economic Impact of COVID-19 on Arkansas Agriculture

- **Key Findings**: (Aggregate Ag & Forestry)
  - Minimal shifts in direct economic contributions
  - Indirect contributions increased
  - Induced contributions fell substantially

While the ag sector showed resilience as a whole, individual industries saw offsetting gains/losses

	Employment (Jobs)			Labor Income (Million 2020 $'s)			Value Added (Million 2020 $'s)		
	2019	2020	Change	2019	2020	Change	2019	2020	Change
Direct	144,928	144,358	-0.4%	6,743	6,816	1.1%	9,872	9,861	-0.1%
Indirect	49,873	50,534	1.3%	2,965	3,105	4.7%	5,101	5,245	2.8%
Induced	59,675	48,273	-19.1%	2,602	2,159	-17.1%	4,655	3,870	-16.9%
Total Contribution	***254,476***	***243,165***	***-4.4%***	***12,310***	***12,079***	***-1.9%***	***19,628***	***18,977***	***-3.3%***

Economic Contribution of Ag

Key Findings:

In terms of direct economic contributions:

- Crop and Livestock sector showed overall growth
- Forest sector showed overall decline

	Employment (Jobs)			Labor Income (Million 2020 $'s)			Value Added (Million 2020 $'s)		
	2019	2020	Change	2019	2020	Change	2019	2020	Change
Crop and Livestock Sector	*106,613*	*107,229*	*0.6%*	*4,542*	*4,704*	*3.6%*	*5,811*	*6,583*	*13.3%*
Crop and Livestock Production	48,684	49,288	1.2%	1,570	1,514	-3.6%	1,360	1,196	-12.1%
Crop and Livestock Processing	57,929	57,941	0.0%	2,972	3,190	7.3%	4,451	5,386	21.0%
Forestry Sector	*27,702*	*26,515*	*-4.3%*	*1,831*	*1,757*	*-4.0%*	*3,677*	*2,908*	*-20.9%*
Forest Production	4,141	4,228	2.1%	276	233	-15.5%	276	239	-13.3%
Forest Processing	23,561	22,287	-5.4%	1,555	1,524	-2.0%	3,401	2,668	-21.5%