

Exhibit No.: _____
Issues: Economic Impact of Agriculture
in Proposed Siting Counties
Witness: Decision Innovation Solutions
Sponsoring Party: Missouri Farm Bureau
Type of Exhibit: Surrebuttal Testimony
Case No.: EA-2016-0358
Date Testimony Prepared: December 2016

**BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI**

In the Matter of the Application of Grain Belt Express)
Clean Line LLC for a Certificate of Convenience and)
Necessity Authorizing it to Construct, Own, Operate,)
Control, Manage, and Maintain a High Voltage, Direct) Case No. EA-2016-0358
Current Transmission Line and an Associated Converter)
Station Providing an interconnection on the Maywood-)
Montgomery 345 kV Transmission Line)
)

**SUMMARY REPORT OF
DECISION INNOVATION SOLUTIONS'
FINDINGS REGARDING ECONOMIC IMPACT
OF AGRICULTURE IN COUNTIES PROPOSED
FOR SITING OF THE GRAIN BELT EXPRESS PROJECT
ON BEHALF OF
THE MISSOURI FARM BUREAU
IN SURREBUTTAL TO THE REBUTTAL TESTIMONY OF
ALAN E. SPELL
FEBURARY 21, 2017**

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1 **I. SUMMARY OF REPORT OF ECONOMIC IMPACT STUDY BY DECISION**
2 **INNOVATION SOLUTIONS**

3 The Missouri Farm Bureau, pursuant to the provisions of 4 CSR 240-2.130(8), submits
4 this summary report of the findings of Decision Innovation Solutions regarding the economic
5 impact of agricultural activities in the counties proposed for siting of the Grain Belt Express
6 project.

7 This report is offered in surrebuttal to the rebuttal testimony of Alan E. Spell of the
8 Missouri Department of Economic Development in which Mr. Spell opined that he expects a
9 positive economic impact for Missouri from the Grain Belt Express project, while also admitting
10 that his model and projections do not take into account the economic impact of lost property
11 values or the lost use of agricultural properties in the proposed Grain Belt Express right of way
12 (*See* Spell testimony at page 3, line 12 through page 4, line 5, and at page 6, lines 1-8.)

13 The Decision Innovation Solutions study summarized here was commissioned by the
14 Missouri Department of Agriculture, the Missouri Agricultural and Small Business Development
15 Authority, and the Missouri Farm Bureau to determine the impact of agriculture on Missouri’s
16 economy. As part of the study, Decision Innovation Solutions published county level impact
17 reports. Attached as an exhibit to this summary are the initial pages of the final Decision
18 Innovation Solutions report entitled “Economic Contributions of Missouri Agriculture and
19 Forestry”, in which the purpose and methodology of the report is set out. The individual county
20 summaries for each county proposed to contain the Grain Belt Express right of way are also
21 included as exhibits with this summary.

22 The analytical team at Decision Innovation Solutions consists of Spencer Parkinson,
23 Merlin Siefken, Sampath Jayasinghe, Michelle Mensing, S. Patricia Batres-Marquez, Jing Tang

1 and Preston Lyman. The report produced does not specify which team members worked to
2 produce the various sections of the report.

3 To summarize the findings of the report in question, Decision Innovation Solutions found
4 the following economic impacts from agriculture for each of the respective counties that lay
5 along the proposed Grain Belt Express right of way:

6 Buchanan County: \$5.5 billion in sales and 10,873 jobs

7 Caldwell County: \$112.3 million in sales and 1,345 jobs

8 Carroll County: \$332 million in sales and 1,872 jobs

9 Chariton County: \$272.9 million in sales and 1,579 jobs

10 Clinton County: \$204 million in sales and 1,587 jobs

11 Monroe County: \$211.3 million in sales and 1,426 jobs

12 Ralls County: \$1.3 billion in sales and 2,231 jobs

13 Randolph County: \$303.7 million in sales and 1,605 jobs

SCHEDULE

QUALIFICATIONS OF THE ANALYSTS FOR DECISION INNOVATION SOLUTIONS

1. Spencer Parkinson

Spence earned a dual BS degree in Accounting and Economics from Utah State University and an International MBA in Food and Agribusiness from the Royal Agricultural College in Cirencester, England.

2. Merlin Siefkin

Merlin earned a BS degree in Mechanized Agriculture with a minor in Business Administration from the University of Nebraska.

3. Sampath Jayasinghe

Sampath received his BS in Agricultural Science, majoring Agricultural Economics from the University of Peradeniya at Kandy, Sri Lanka in 1999. He received his M.S. in Agricultural Economics and Business from the University of Guelph, Ontario, Canada in 2003, and MS (2004, only coursework) and Ph.D. (ABD) in Economics at Iowa State University.

4. Michelle Mensing

Michelle graduated from Iowa State University with a BS degree in Finance with a minor in Agricultural Business.

5. S. Patricia Batres-Marquez

Patricia received a BS degree in Business Administration from Universidad Centroamericana “Jose Simeon Cañas” (UCA), El Salvador. She also earned a Master degree in Agricultural Economics from Kansas State University in Manhattan, Kansas.

6. Jing Tang

Jing earned a Bachelor degree in Food Science and Technology at the Beijing Business and Technology University (BTBU), and obtained a M.S. degree in Food Science and MA in Statistics at the University of Missouri (MU), Columbia.

7. Preston Lyman

Preston graduated from Brigham Young University – Idaho with a BS in Agricultural Economics accompanied by a Minor in Mandarin.

ECONOMIC CONTRIBUTIONS OF MISSOURI AGRICULTURE AND FORESTRY

Prepared
for:



Prepared
by:



December 2016

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Table 1, Acronyms

<u>Acronym</u>	<u>Description</u>
USDA	United States Department of Agriculture
USDA/NASS	United States Department of Agriculture, National Agricultural Statistics Service
USDA/ERS	United States Department of Agriculture, Economic Research Service
BEA	Bureau of Economic Analysis
BLS	Bureau of Labor Statistics
GDP	Gross Domestic Product

Executive Summary

The State of Missouri has a diverse agriculture industry that is especially strong in growing grains and oilseeds (soybeans), cattle and hog farming and many further processing for food and forestry industries. This study of the Economic Contributions of Missouri Agriculture and Forestry quantifies the importance of these industries to the state.

This study was produced using a combination of datasets including the IMPLAN modeling system, the 2012 USDA Census of Agriculture, as well as other USDA/NASS datasets. This report looks at the economic activity tied to production agriculture, forestry, processing, and various support activities. All ninety-nine industries identified and analyzed in this study can be found in Appendix A.

The results of this study show the diminishment of these industries would have negative impacts across the State of Missouri. Due to the importance of agriculture and forestry to the economic well-being of Missouri, one can expect that these industries will remain key players in the state.

Key Findings

In 2016, agriculture, forestry and related industries in Missouri contributed:

- **\$33.0 billion** (9.3% of Missouri total) in value-added
 - \$88.4 (14.8% of Missouri total) billion in sales minus \$55.4 billion in inputs
- **378,232** (10.5% of Missouri total) jobs
- **\$17.5 billion** (9.3% of Missouri total) in labor income
- **\$2.2 billion** in state/local taxes
- **\$4.0 billion** in federal taxes

Of the **\$33.0 billion** in added value from the agriculture, forestry, and related economic activity:

- Crops, Livestock, Forestry, and Fisheries Production contributed: **\$9.4 billion**
- Agriculture Inputs and Services contributed: **\$5.0 billion**
- Food and Related Products Manufacturing contributed: **\$15.5 billion**
- Forestry Products Manufacturing contributed: **\$3.2 billion**

Of the industries studied, the following are the top three contributors of value-added to the State of Missouri:

- Breweries: **\$2.9 billion**
- Oilseed Farming: **\$2.3 billion**
- Dog and Cat Food Manufacturing: **\$2.3 billion**

In addition to analyzing agriculture, forestry, and related economic activity at the state level, county level and congressional district results are available in separate reports. These can be found at: <http://agriculture.mo.gov/economicimpact/>.

Background

This study on the Economic Contributions of Missouri Agriculture and Forestry quantifies agriculture, forestry and related industries and their importance to the State of Missouri and each of the 114 counties and eight congressional districts in the state. This study relies heavily on data from the IMPLAN modeling system, the United States Department of Agriculture (USDA) 2012 Census of Agriculture, and other USDA/National Agricultural Statistics Service datasets. This 2016 Economic Contributions of Missouri Agriculture and Forestry is patterned in principle after similar [Decision Innovation Solutions \(DIS\) studies](#) for Iowa in 2009 and 2014, South Dakota in 2014, Illinois in 2015, and Alabama in 2016. The following provides important context for agriculture and forestry in the State of Missouri.

Missouri Agriculture

According to the National Agricultural Statistics Service (2016 Quick Stats) and the Missouri Department of Agriculture, Missouri is ranked in the top ten states for:

- Number of farm operations (#2)
- Biodiesel production (#2)
- Forage land used for all hay, haylage, grass silage, and greenchop acres (#2)
- Beef cows (#3)
- Turkeys inventory (#4)
- Soybean acres (#4)
- Rice acres harvested (#4)
- Hogs and pigs sales (#7)
- Broilers and other meat-type chickens inventory (#9)
- Corn acres planted (#9)
- Cotton and cotton seed sales (#9)
- Ice cream production (#9)

Additionally, other important agricultural production in Missouri includes:

- Ethanol production¹ (#12)
- Pullets inventory (#13)
- All wheat for grain acres (#13)
- Tobacco sales (#15)
- Sheep, goats and their products (#15))

¹ Missouri Department of Energy March 17, 2016 “*State Profile and Energy Estimates*”

Missouri Farm Demographics

According to the USDA Census of Agriculture (conducted every 5 years), there were 99,171 farms² in Missouri in 2012. The average farm size in Missouri increased slightly from 269 acres in 2007 to 285 acres in 2012, but is still below the U.S. average size of 434 acres. The 2012 average market value of land and buildings per farm has increased 170% since 1997 to \$795,444. The average value of machinery and equipment per farm has also continued to rise over time, rising from \$39,084 in 1997 to \$88,960 in 2012.

Table 2, Missouri Farm Demographics

	<u>1997</u>	<u>2002</u>	<u>2007</u>	<u>2012</u>
Number of Farms	110,986	106,797	107,825	99,171
Average Size of Farms (acres)	272	280	269	285
Average age of principal operator	54	56	57	58
Average market value per farm				
Land and Buildings	\$294,636	\$424,327	\$586,478	\$795,444
Machinery and Equipment	\$39,084	\$49,940	\$68,171	\$88,960
Farm Products Sold	\$49,250	\$46,661	\$69,677	\$92,415

The average age of Missouri farmers has increased from 54 in 1997 to 58 in 2012. Figure 1 shows that there is a fairly smaller number of young farmers and that the majority fall into the 45-54 and 70+ age groups. Moving forward, there is a strong group of experienced farmers in the 45-54 age group prepared to help relieve the farmers 70 years and older, but development of a younger generation of farmers is also critical for the future success of Missouri farms.

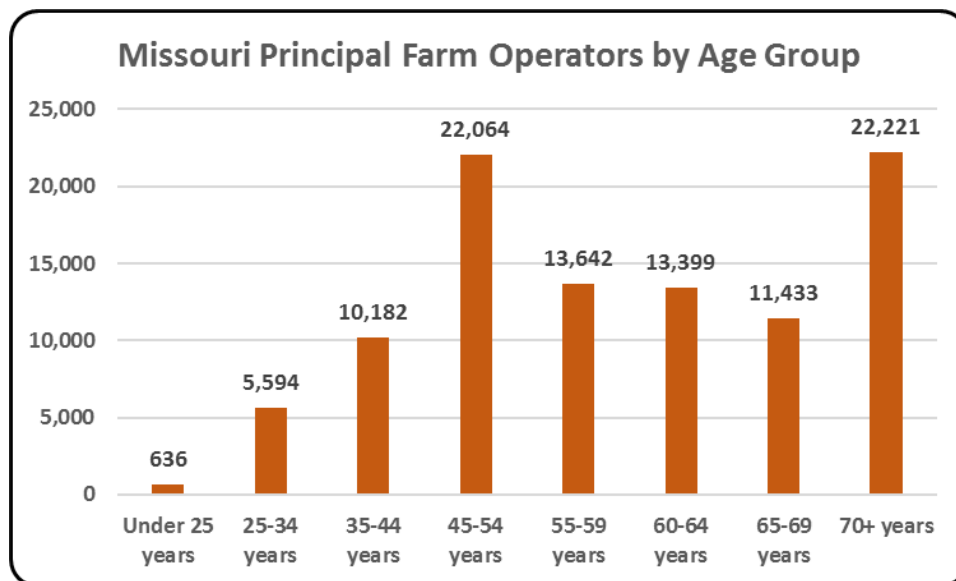


Figure 1, Missouri Principal Farm Operators by Age Group

² The U.S. Agriculture Department (USDA) defines a “farm” as any place from which \$1,000 or more of agricultural products were produced and sold, or normally would have been sold, during the year.

Figure 2 displays the breakdown of Missouri farms by size. As shown, the most common size for a Missouri farm is 50 to 179 acres. While the number of farms in the largest size category is fewer, these higher acreage farms typically make up the majority of farm sales. Smaller farms are generally hobby or specialty farms.

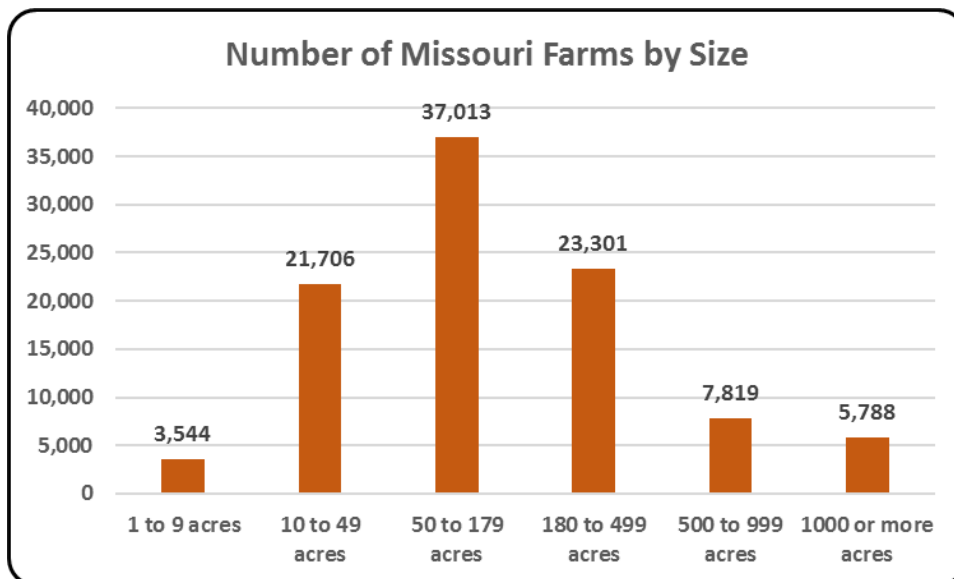


Figure 2, Number of Missouri Farms by Size

Out of the 99,171 farms in Missouri, the majority are owned by families or individuals (88,713), while only 289 are held by non-family corporations.

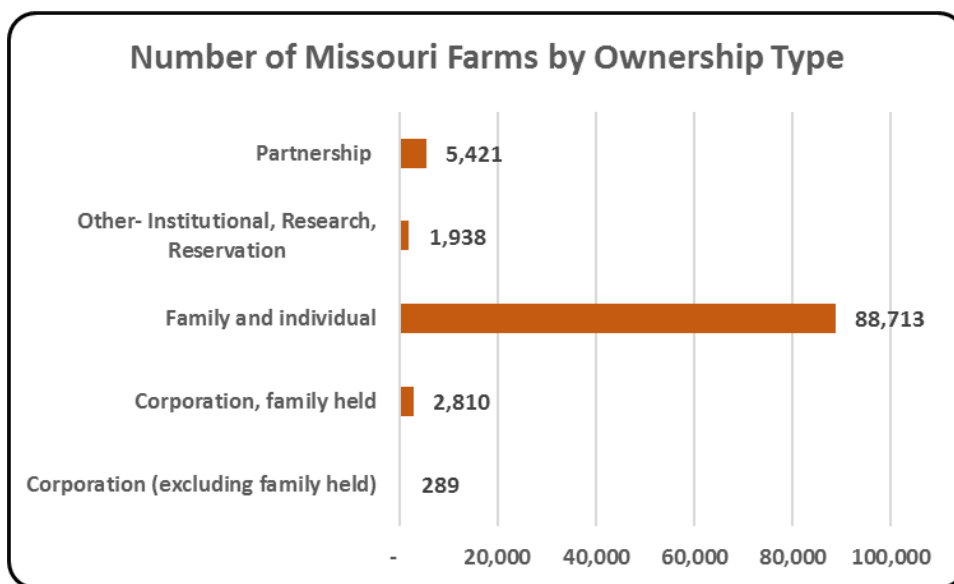


Figure 3, Number of Missouri Farms by Ownership Type

Total farm sales by source are shown below in Table 3. Farm sales in Missouri are generated from a wide variety of crops and livestock with some of the top areas including grains and oilseeds, cattle and calves, and poultry and eggs. In addition to these, many other types of crops and livestock thrive in Missouri, which helps demonstrate the strength and flexibility of agriculture and related industries.

Table 3, Missouri Farm Sales by Source

	<u>1997</u>	<u>2002</u>	<u>2007</u>	<u>2012</u>
Total Sales (\$1,000)	\$5,466,009	\$4,983,255	\$7,512,926	\$9,164,886
Crops, including nursery and greenhouse (\$1,000)	\$2,389,939	\$1,992,446	\$3,494,938	\$4,566,953
Cotton and cottonseed	\$177,167	\$137,378	\$164,714	\$248,631
Cut Christmas trees and short-rotation woody crops		\$1,843	\$1,078	\$1,146
Fruits, tree nuts, and berries	\$13,486	\$22,823	\$4,315	\$25,749
Grains, oilseeds, dry beans, and dry peas		\$1,546,535	\$2,963,208	\$3,922,873
Nursery, greenhouse, floriculture, and sod		\$101,316	\$121,280	\$88,135
Other crops and hay		\$139,973	\$173,618	\$215,921
Tobacco	\$10,570	\$5,854	\$5,022	\$1,375
Vegetables, melons, potatoes, and sweet potatoes		\$36,723	\$61,705	\$63,122
Livestock, Poultry and their products (\$1,000)	\$3,076,070	\$2,990,809	\$4,017,988	\$4,597,933
Aquaculture		\$11,107	\$9,506	\$10,256
Cattle and Calves	\$1,143,320	\$1,285,288	\$1,676,632	\$1,968,617
Hogs and Pigs	\$841,644	\$570,551	\$725,738	\$882,526
Horses, ponies, mules, burros, and donkeys		\$27,111	\$21,369	\$22,635
Milk and other dairy products from cows	\$293,411	\$300,460	\$302,684	\$246,358
Other animals and their products		\$5,796	\$7,313	\$8,612
Poultry and Eggs	\$755,708	\$784,986	\$1,265,166	\$1,441,676
Sheep, goats, and their products		\$5,508	\$9,580	\$17,254

Forestry

According to the 2012 USDA Forest Resources of the United States report³, forest land in Missouri makes up about 35 percent of total land area in the state (nearly 15.5 million acres). About eighty-two percent of the total forest land in Missouri is privately held, while the other eighteen percent is publicly held. Forest land in Missouri has seen a slight increase (2.6%), going from 15.1 million acres in 2007 to nearly 15.5 million acres in 2012.

Table 4, Missouri Forestry Acres

	<u>Land area (thousand acres)</u>
Total Land Area	43,995
Total Forest Land	15,472
Total Timberland	15,085
Timberland – Planted	142
Timberland – Natural origin	14,943
Forest Land – Reserved	185
Forest Land – Other	202
Other Land	28,523

³ http://www.srs.fs.usda.gov/pubs/gtr/gtr_wo091.pdf

Methodology

The 2016 Missouri Agriculture and Forestry Economic Contribution Study was completed with a combination of the 2014 Missouri IMPLAN dataset, data from the USDA 2012 Census of Agriculture, and other USDA/NASS sources. The IMPLAN modeling system and Microsoft Excel were used for calculating and tabulating the results of this analysis. While the 2014 IMPLAN dataset was used to calculate the economic contribution results, they have been adjusted forward to 2016 dollars using inflation factors within the IMPLAN modeling system. Results shown throughout this report are presented using these common economic modeling terms:

- **Sales (Output)**
 - The broadest measure of economic activity – sometimes referred to as “output”
- **Employment (Jobs)**
 - A measure of job positions without regard to whether they are full-time equivalents
- **Value-Added**
 - Sales (output) minus the cost of inputs
- **Labor Income**
 - The sum of Employee Compensation (work for hire) and Proprietor Income (self-employed) and is a sub-component of value-added.

Complementary Analysis

As can be the case, multiple reports studying the same subject (all or in part) may be available. Such is the case with a [recent analysis](#) conducted by the University of Missouri Extension (Ryan Milhollin, Joe Horner and Brett Lenz) on behalf of the Missouri Soybean Merchandising Council (MSMC) in May 2016. The University of Missouri analysis dealt with the animal agriculture component of Missouri agriculture. As shown in their report, the industries studied included all livestock and poultry sectors plus the processing of the products that come from those industries (i.e., milk processing, etc.). As discussed later in this section, all industries part of the University of Missouri report are included in this analysis.

There can be wide variability in methodology among authors of studies such as these. This can yield large differences in results that may be difficult to explain. However, both the authors of this study and the University of Missouri study adopted the same methodology (that recommended by the IMPLAN group). In our post analysis assessment, ninety-three percent of the results in both studies of animal agriculture were within five percent of each other. Readers of this report can therefore assume that the studies are directly comparable to one another.

Defining Agriculture and Forestry

When completing an economic contribution study, there are generally questions as to what economic activity up and down the value chain should be included for a particular industry. Outlined below is the process used in this study for defining agriculture; the same guidelines have been applied to the forestry industry.

There is usually considerable discussion regarding the blurred lines between production agriculture, processing and retail, and how agriculture should be defined. Agriculture can be defined as: 1) including only farm-level production, 2) including farm-level production, input manufacturing, and food processing, or 3) from the “farm to fork” perspective, which would also include distribution and retail.

While there is room for discussion as to what rightly should and should not be included as part of the agriculture sector, there are few arguments that its inclusion should be limited to strictly the production of crops and livestock. This is because in its most basic form, the crop and livestock processing, slaughtering, meat, and rendering industries depend nearly completely upon economic activities that produce primary agricultural commodities (crops, livestock, etc.), which takes place at the farm level.

To move beyond the production and processing of agricultural products (i.e., to include grocery stores) opens an analysis up to criticism related to whether the inclusion of additional layers of the value chain inflate the numbers associated with the agriculture industry. For example, if one were to include grocery stores as a component of agriculture, what would be the appropriate method to separate agricultural products from other products within a typical grocery store? The fact that grocery stores also sell household goods, often house banks, and offer personal services add to the precarious nature of including them as part of agriculture.

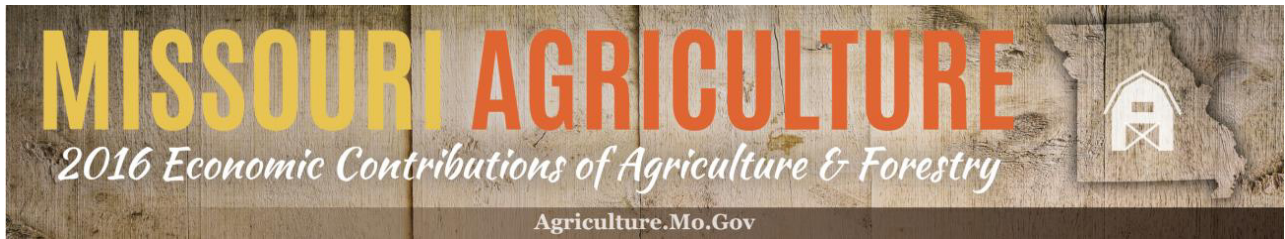
To strike middle (and defensible) ground between including more than just farm level production and seeking to attribute excess economic activity to the animal agriculture industry, this analysis includes production agriculture plus the first round of value added to the process. For example, in addition to the production of livestock and poultry, we have also included the industries that process them (i.e., production, processing, slaughtering, and rendering). As mentioned above, we have followed this same pattern of analyzing other agricultural industries (e.g., crops), forestry production and further processing (sawmills, etc.).

Using the above rationale as a guide, the IMPLAN models were created and analyzed using the recommended methodology for a Multi-Industry Contribution Analysis⁴. The IMPLAN modeling system uses more than 20,000 industries and classifies them according to the North American Industry Classification System (NAICS) and groups them into 536 industries. The 99 IMPLAN sectors identified for this analysis to represent agriculture, forestry, and related economic activities are shown in Appendix A. In addition to these state level results, the overall study produced results for 123 study areas: 114 counties, 8 congressional districts, and the State of Missouri.

Out of the ninety-nine IMPLAN industries identified, only some of those industries exist in each of the counties. Figure 4 summarizes how many of the ninety-nine industries are present in each county⁵. Eighty-eight of the ninety-nine are present in the State of Missouri.

⁴ http://support.implan.com/index.php?option=com_content&view=article&layout=edit&id=366

⁵ The IMPLAN data used in this study separates the City of St. Louis from the rest of St. Louis County. We opted to combine these two study areas into one for purposes of comparing counties to one another.



BUCHANAN COUNTY

Economic Contributions of Agriculture, Forestry & Related Industries:

Sales: \$5.5 billion

Jobs: 10,873

Value-Added: \$1.2 billion

Labor Income: \$566.8 million

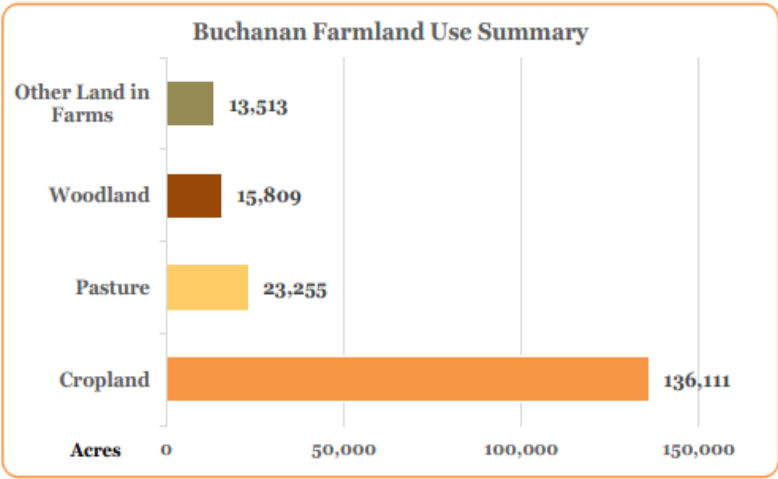
Inputs: \$4.4 billion

Taxes: \$215.9 million

Sales: The broadest measure of economic activity - often referred to as “output”; **Employment (Jobs):** A measure of job positions without regard to whether they are full-time equivalents; **Value-Added:** Sales (output) minus the cost of inputs; **Taxes:** Includes taxes paid at the federal, state and local levels.

Economic Contributions						
	Inputs (\$M)	+	Value-Added (\$M)	=	Sales (\$M)	Employment
Ag Inputs & Services	\$902.6		\$295.0		\$1,197.6	1,983
Crops, Livestock, Forestry, & Fisheries Production	\$63.7		\$67.8		\$131.6	1,176
Food & Kindred Products Manufacturing	\$3,340.3		\$798.6		\$4,138.9	7,412
Forestry Products Manufacturing	\$47.2		\$22.6		\$69.8	303
Total	\$4,353.8		\$1,184.0		\$5,537.8	10,873

Number of Farms: 727 farms
 Average Size of Farm: 260 acres
 Total Land Area: 261,137 acres
 Total Land in Farms: 188,688 acres
 Population (2015): 89,100



Brought to you by:
 Missouri Department of Agriculture | Missouri Farm Bureau | Missouri Agricultural & Small Business Development Authority

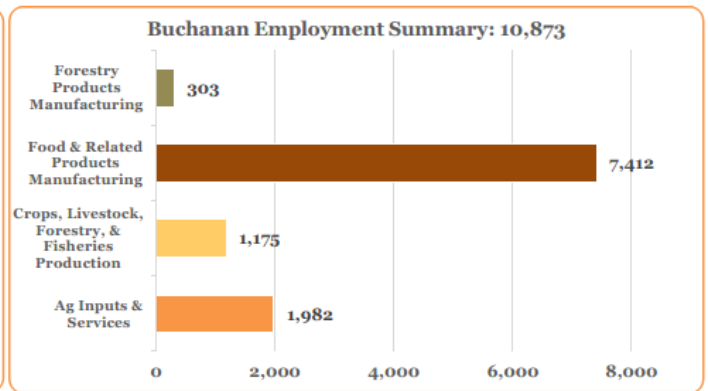
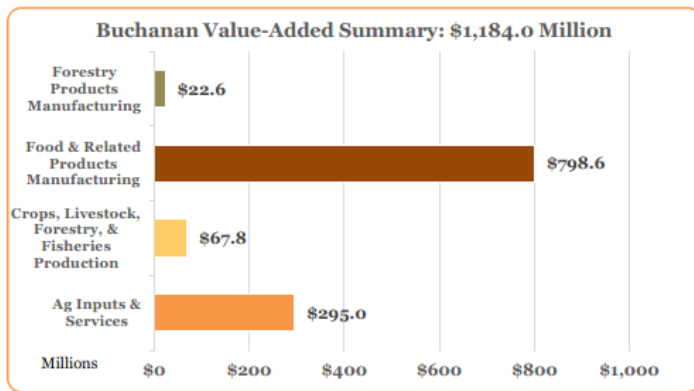




BUCHANAN COUNTY

Overall Top Three Contributors (Ranked by Value-Added)

	Inputs (\$M)	+	Value-Added (\$M)	=	Sales (\$M)	Employment
Animal, except poultry, slaughtering	\$1,734.6		\$411.3		\$2,145.9	4,330
Pesticide and other agricultural chemical mfg	\$543.1		\$221.6		\$764.7	1,162
Dog and cat food manufacturing	\$315.2		\$137.1		\$452.3	686



Crops, Livestock, Forestry & Fishery Production - Top Three Contributors (Ranked by Value-Added)

	Inputs (\$M)	+	Value-Added (\$M)	=	Sales (\$M)	Employment
Oilseed farming	\$11.5		\$29.3		\$40.8	172
Corn	\$39.4		\$12.7		\$52.1	373
Beef cattle ranching and farming	\$6.1		\$6.3		\$12.4	153

Note: Totals in tables may not sum due to rounding.

Overall Contributions to Buchanan County

Agricultural, forestry, and related industries support 10,873 jobs in Buchanan County. Additionally, these industries contribute \$5.5 billion in sales, which translates to \$1.2 billion in added value to the area after \$4.4 billion worth of inputs are purchased. Of this \$1,184.0 million, \$566.8 million is comprised of labor income. Tax revenues generated by the agricultural, forestry, and related industries in Buchanan County are \$215.9 million.



CALDWELL COUNTY

Economic Contributions of Agriculture, Forestry & Related Industries:

Sales: \$112.3 million

Jobs: 1,345

Value-Added: \$79.5 million

Labor Income: \$36.8 million

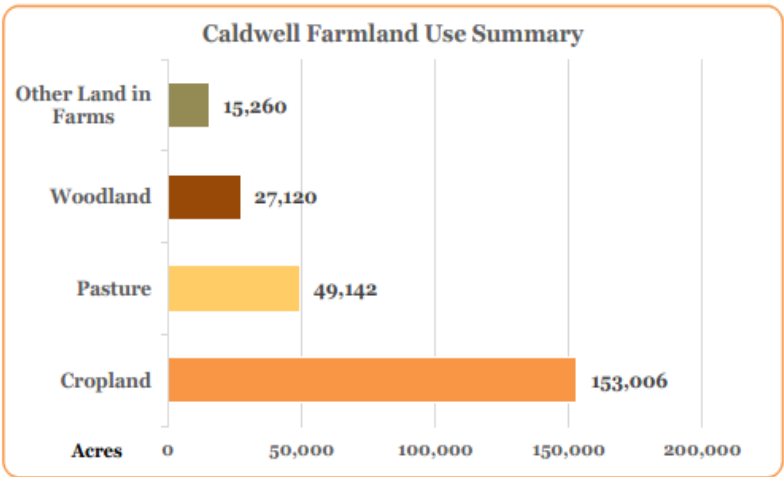
Inputs: \$32.9 million

Taxes: \$10.6 million

Sales: The broadest measure of economic activity - often referred to as "output"; **Employment (Jobs):** A measure of job positions without regard to whether they are full-time equivalents; **Value-Added:** Sales (output) minus the cost of inputs; **Taxes:** Includes taxes paid at the federal, state and local levels.

Economic Contributions						
	Inputs (\$M)	+	Value-Added (\$M)	=	Sales (\$M)	Employment
Ag Inputs & Services	\$1.7		\$0.9		\$2.6	66
Crops, Livestock, Forestry, & Fisheries Production	\$29.8		\$78.2		\$108.0	1,267
Food & Kindred Products Manufacturing	\$1.4		\$0.4		\$1.8	11
Forestry Products Manufacturing	N/A		N/A		N/A	N/A
Total	\$32.9		\$79.5		\$112.3	1,345

Number of Farms: 1,035 farms
 Average Size of Farm: 236 acres
 Total Land Area: 272,891 acres
 Total Land in Farms: 244,528 acres
 Population (2015): 9,014



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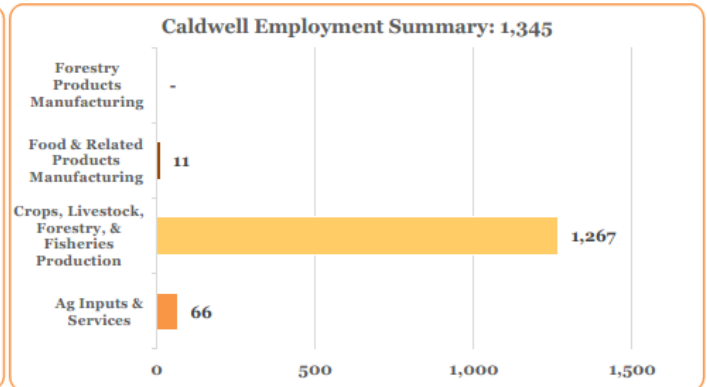
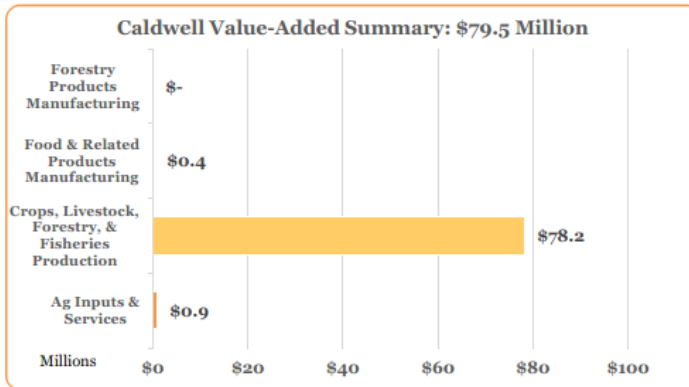




CALDWELL COUNTY

Overall Top Three Contributors (Ranked by Value-Added)

	Inputs (\$M)	+	Value-Added (\$M)	=	Sales (\$M)	Employment
Other Livestock	\$2.8		\$20.1		\$22.9	374
Oilseed farming	\$5.4		\$15.6		\$21.0	69
Horses	\$2.2		\$15.5		\$17.7	289



Crops, Livestock, Forestry & Fishery Production - Top Three Contributors (Ranked by Value-Added)

	Inputs (\$M)	+	Value-Added (\$M)	=	Sales (\$M)	Employment
Other Livestock	\$2.8		\$20.1		\$22.9	374
Oilseed farming	\$5.4		\$15.6		\$21.0	69
Horses	\$2.2		\$15.5		\$17.7	289

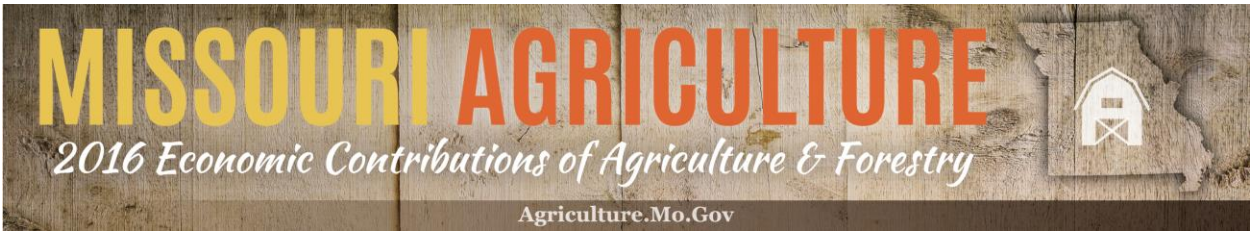
Note: Totals in tables may not sum due to rounding.

Overall Contributions to Caldwell County

Agricultural, forestry, and related industries support 1,345 jobs in Caldwell County. Additionally, these industries contribute \$112.3 million in sales, which translates to \$79.5 million in added value to the area after \$32.9 million worth of inputs are purchased. Of this \$79.5 million, \$36.8 million is comprised of labor income. Tax revenues generated by the agricultural, forestry, and related industries in Caldwell County are \$10.6 million.

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CARROLL COUNTY

Economic Contributions of Agriculture, Forestry & Related Industries:

Sales: \$332.0 million

Jobs: 1,872

Value-Added: \$138.9 million

Labor Income: \$70.0 million

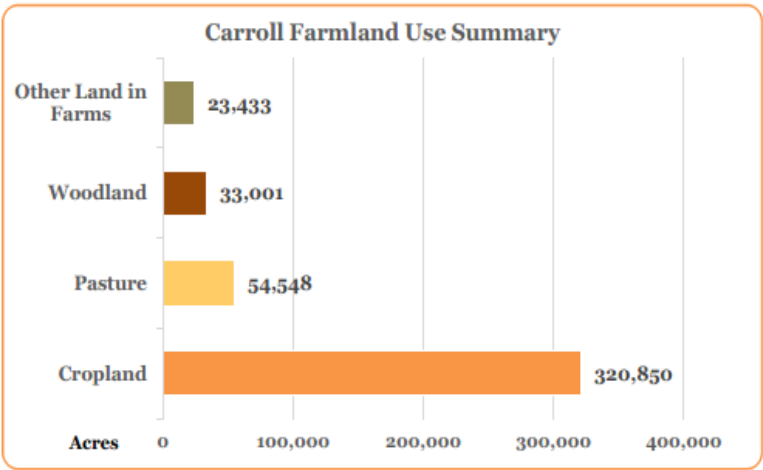
Inputs: \$193.0 million

Taxes: \$15.1 million

Sales: The broadest measure of economic activity - often referred to as “output”; **Employment (Jobs):** A measure of job positions without regard to whether they are full-time equivalents; **Value-Added:** Sales (output) minus the cost of inputs; **Taxes:** Includes taxes paid at the federal, state and local levels.

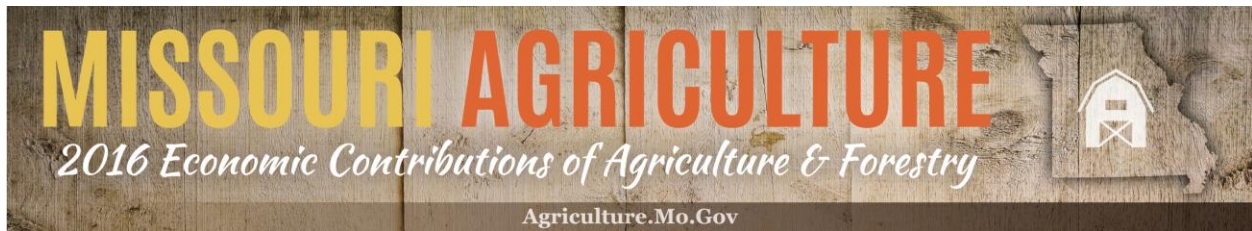
Economic Contributions						
	Inputs (\$M)	+	Value-Added (\$M)	=	Sales (\$M)	Employment
Ag Inputs & Services	\$70.0		\$11.5		\$81.5	196
Crops, Livestock, Forestry, & Fisheries Production	\$113.1		\$113.0		\$226.1	1,565
Food & Kindred Products Manufacturing	\$0.8		\$0.3		\$1.1	6
Forestry Products Manufacturing	\$9.1		\$14.2		\$23.3	105
Total	\$193.0		\$138.9		\$332.0	1,872

Number of Farms: 1,112 farms
 Average Size of Farm: 388 acres
 Total Land Area: 444,557 acres
 Total Land in Farms: 431,832 acres
 Population (2015): 8,992



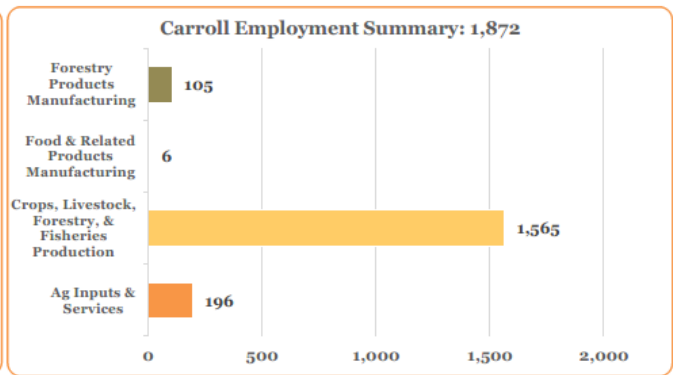
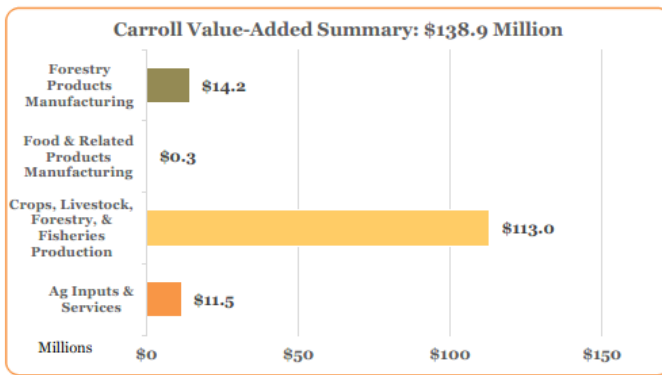
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CARROLL COUNTY

Overall Top Three Contributors (Ranked by Value-Added)						
	Inputs (\$M)	+	Value-Added (\$M)	=	Sales (\$M)	Employment
Oilseed farming	\$21.9		\$56.9		\$78.8	264
Beef cattle ranching and farming	\$17.1		\$16.6		\$33.7	324
Corn	\$60.8		\$15.5		\$76.3	440

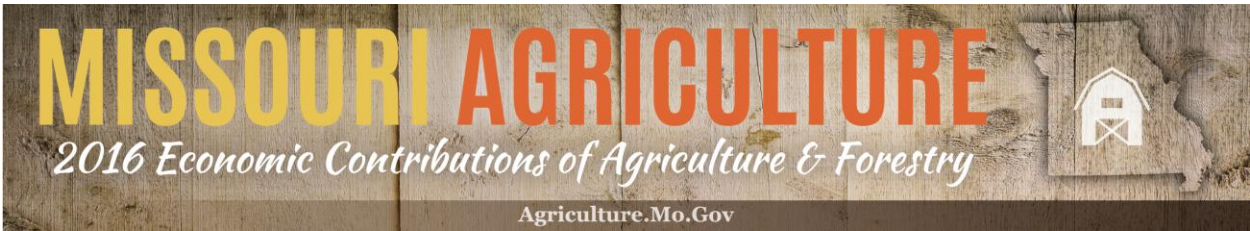


Crops, Livestock, Forestry & Fishery Production - Top Three Contributors (Ranked by Value-Added)						
	Inputs (\$M)	+	Value-Added (\$M)	=	Sales (\$M)	Employment
Oilseed farming	\$21.9		\$56.9		\$78.8	264
Beef cattle ranching and farming	\$17.1		\$16.6		\$33.7	324
Corn	\$60.8		\$15.5		\$76.3	440

Note: Totals in tables may not sum due to rounding.

Overall Contributions to Carroll County

Agricultural, forestry, and related industries support 1,872 jobs in Carroll County. Additionally, these industries contribute \$332.0 million in sales, which translates to \$138.9 million in added value to the area after \$193.0 million worth of inputs are purchased. Of this \$138.9 million, \$70.0 million is comprised of labor income. Tax revenues generated by the agricultural, forestry, and related industries in Carroll County are \$15.1 million.



CHARITON COUNTY

Economic Contributions of Agriculture, Forestry & Related Industries:

Sales: \$272.9 million

Jobs: 1,579

Value-Added: \$106.1 million

Labor Income: \$50.3 million

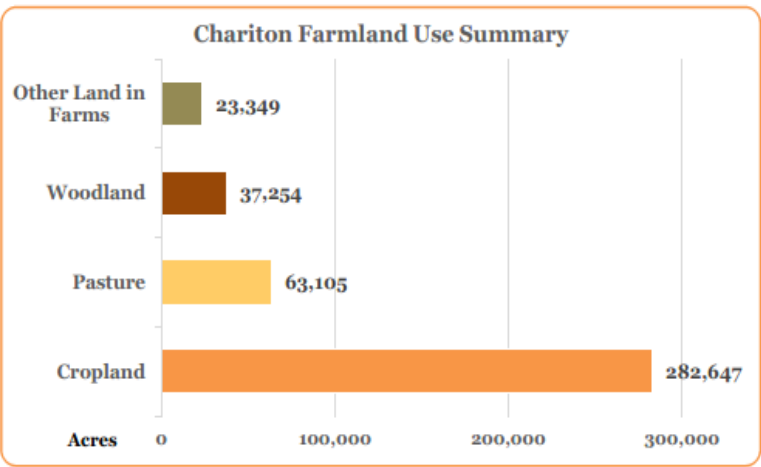
Inputs: \$166.8 million

Taxes: \$13.3 million

Sales: The broadest measure of economic activity - often referred to as "output"; **Employment (Jobs):** A measure of job positions without regard to whether they are full-time equivalents; **Value-Added:** Sales (output) minus the cost of inputs; **Taxes:** Includes taxes paid at the federal, state and local levels.

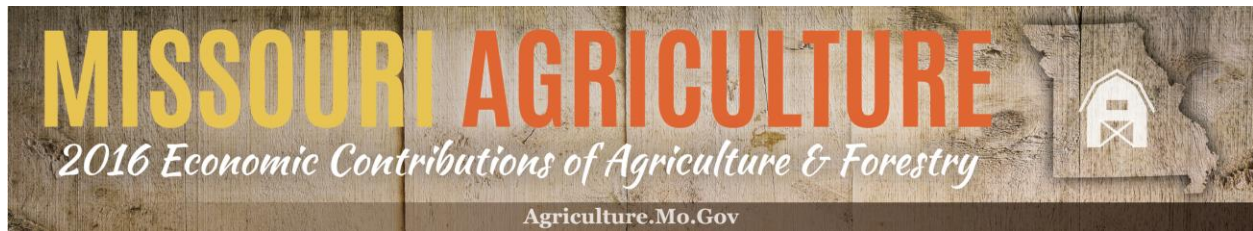
Economic Contributions						
	Inputs (\$M)	+	Value-Added (\$M)	=	Sales (\$M)	Employment
Ag Inputs & Services	\$75.6		\$12.9		\$88.5	135
Crops, Livestock, Forestry, & Fisheries Production	\$87.9		\$89.7		\$177.6	1,415
Food & Kindred Products Manufacturing	\$2.2		\$1.1		\$3.3	18
Forestry Products Manufacturing	\$1.2		\$2.4		\$3.5	11
Total	\$166.8		\$106.1		\$272.9	1,579

Number of Farms: 1,120 farms
 Average Size of Farm: 363 acres
 Total Land Area: 480,753 acres
 Total Land in Farms: 406,355 acres
 Population (2015): 7,589



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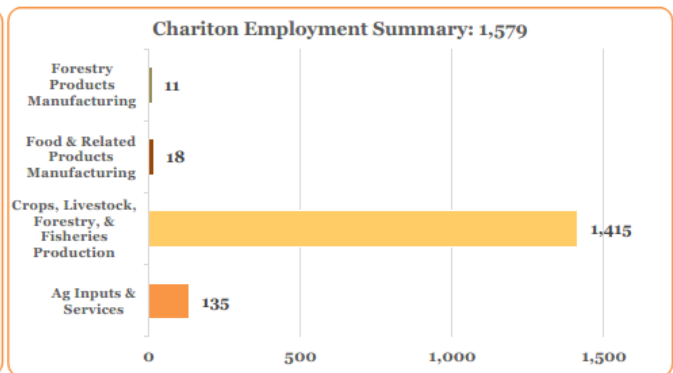
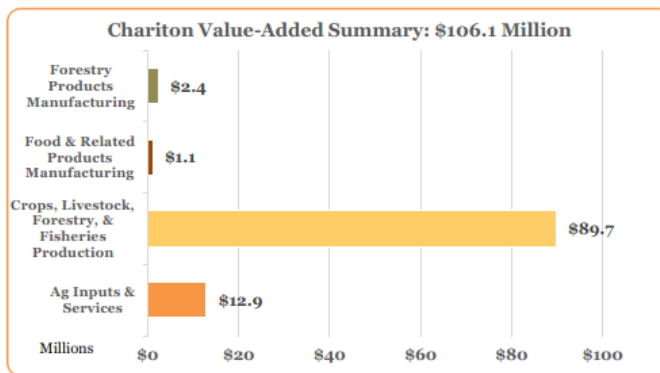




CHARITON COUNTY

Overall Top Three Contributors (Ranked by Value-Added)

	Inputs (\$M)	+	Value-Added (\$M)	=	Sales (\$M)	Employment
Oilseed farming	\$19.6		\$50.8		\$70.4	270
Beef cattle ranching and farming	\$16.7		\$16.1		\$32.8	381
Other basic organic chemical mfg	\$75.4		\$12.8		\$88.2	130



Crops, Livestock, Forestry & Fishery Production - Top Three Contributors (Ranked by Value-Added)

	Inputs (\$M)	+	Value-Added (\$M)	=	Sales (\$M)	Employment
Oilseed farming	\$19.6		\$50.8		\$70.4	270
Beef cattle ranching and farming	\$16.7		\$16.1		\$32.8	381
Corn	\$40.5		\$11.1		\$51.6	358

Note: Totals in tables may not sum due to rounding.

Overall Contributions to Chariton County

Agricultural, forestry, and related industries support 1,579 jobs in Chariton County. Additionally, these industries contribute \$272.9 million in sales, which translates to \$106.1 million in added value to the area after \$166.8 million worth of inputs are purchased. Of this \$106.1 million, \$50.3 million is comprised of labor income. Tax revenues generated by the agricultural, forestry, and related industries in Chariton County are \$13.3 million.

MISSOURI AGRICULTURE

2016 Economic Contributions of Agriculture & Forestry

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CLINTON COUNTY

Economic Contributions of Agriculture, Forestry & Related Industries:

Sales: \$204.0 million

Jobs: 1,587

Value-Added: \$76.2 million

Labor Income: \$40.7 million

Inputs: \$127.8 million

Taxes: \$10.5 million

Sales: The broadest measure of economic activity - often referred to as "output"; **Employment (Jobs):** A measure of job positions without regard to whether they are full-time equivalents; **Value-Added:** Sales (output) minus the cost of inputs; **Taxes:** Includes taxes paid at the federal, state and local levels.

Economic Contributions						
	Inputs (\$M)	+	Value-Added (\$M)	=	Sales (\$M)	Employment
Ag Inputs & Services	\$3.4		\$4.0		\$7.4	127
Crops, Livestock, Forestry, & Fisheries Production	\$53.0		\$55.2		\$108.2	1,216
Food & Kindred Products Manufacturing	\$58.5		\$9.9		\$68.4	121
Forestry Products Manufacturing	\$12.9		\$7.1		\$20.0	124
Total	\$127.8		\$76.2		\$204.0	1,587

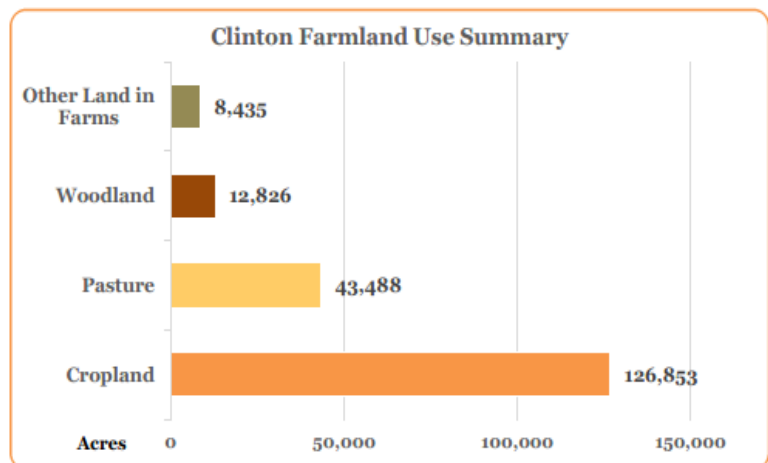
Number of Farms: 758 farms

Average Size of Farm: 253 acres

Total Land Area: 268,132 acres

Total Land in Farms: 191,602 acres

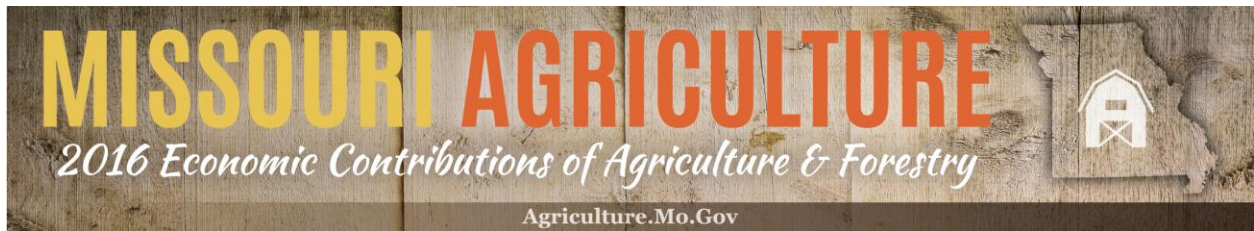
Population (2015): 20,609



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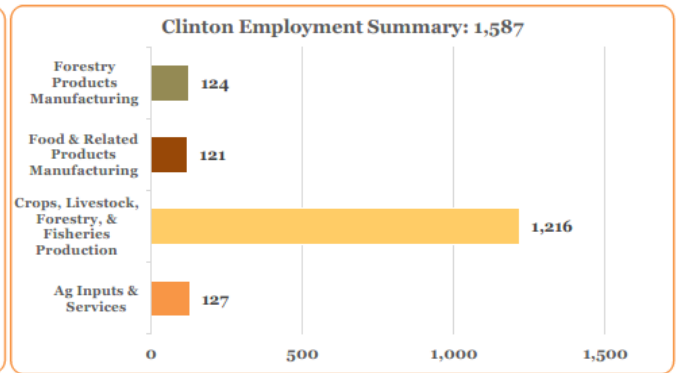
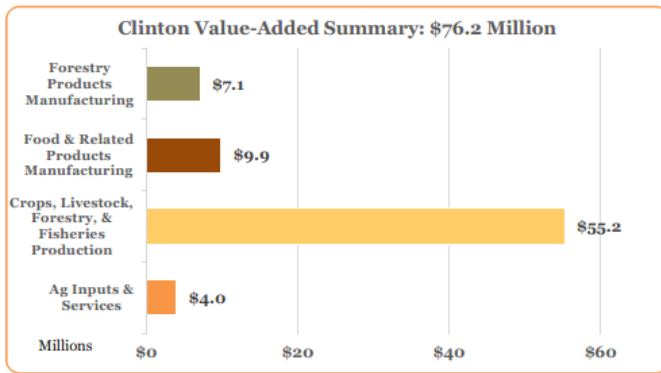
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CLINTON COUNTY

Overall Top Three Contributors (Ranked by Value-Added)						
	Inputs (\$M)	+	Value-Added (\$M)	=	Sales (\$M)	Employment
Oilseed farming	\$7.0		\$19.8		\$26.8	108
Horses	\$2.7		\$10.1		\$12.8	290
Beef cattle ranching and farming	\$9.5		\$9.5		\$19.0	244



Crops, Livestock, Forestry & Fishery Production - Top Three Contributors (Ranked by Value-Added)						
	Inputs (\$M)	+	Value-Added (\$M)	=	Sales (\$M)	Employment
Oilseed farming	\$7.0		\$19.8		\$26.8	108
Horses	\$2.7		\$10.1		\$12.8	290
Beef cattle ranching and farming	\$9.5		\$9.5		\$19.0	244

Note: Totals in tables may not sum due to rounding.

Overall Contributions to Clinton County

Agricultural, forestry, and related industries support 1,587 jobs in Clinton County. Additionally, these industries contribute \$204.0 million in sales, which translates to \$76.2 million in added value to the area after \$127.8 million worth of inputs are purchased. Of this \$76.2 million, \$40.7 million is comprised of labor income. Tax revenues generated by the agricultural, forestry, and related industries in Clinton County are \$10.5 million.

MISSOURI AGRICULTURE

2016 Economic Contributions of Agriculture & Forestry

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MONROE COUNTY

Economic Contributions of Agriculture, Forestry & Related Industries:

Sales: \$211.3 million

Jobs: 1,426

Value-Added: \$99.7 million

Labor Income: \$41.9 million

Inputs: \$111.5 million

Taxes: \$12.4 million

Sales: The broadest measure of economic activity - often referred to as "output"; **Employment (Jobs):** A measure of job positions without regard to whether they are full-time equivalents; **Value-Added:** Sales (output) minus the cost of inputs; **Taxes:** Includes taxes paid at the federal, state and local levels.

Economic Contributions						
	Inputs (\$M)	+	Value-Added (\$M)	=	Sales (\$M)	Employment
Ag Inputs & Services	\$58.6		\$20.4		\$79.0	138
Crops, Livestock, Forestry, & Fisheries Production	\$49.7		\$78.4		\$128.1	1,267
Food & Kindred Products Manufacturing	\$0.1		\$0.1		\$0.2	2
Forestry Products Manufacturing	\$3.1		\$0.9		\$4.0	19
Total	\$111.5		\$99.7		\$211.3	1,426

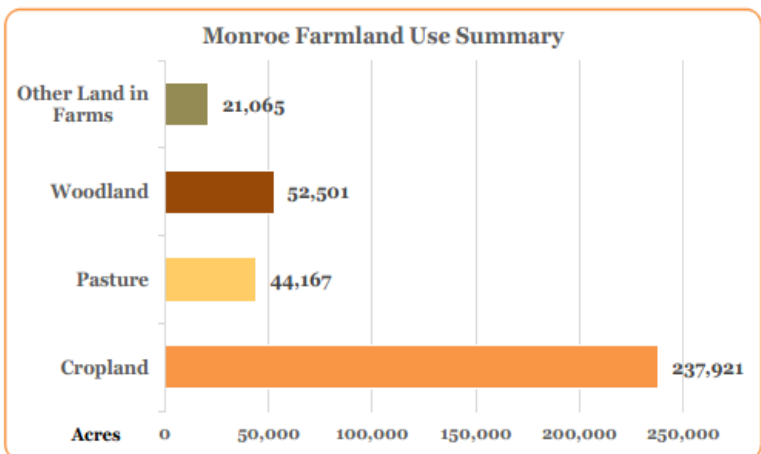
Number of Farms: 1,061 farms

Average Size of Farm: 335 acres

Total Land Area: 414,498 acres

Total Land in Farms: 355,654 acres

Population (2015): 8,583



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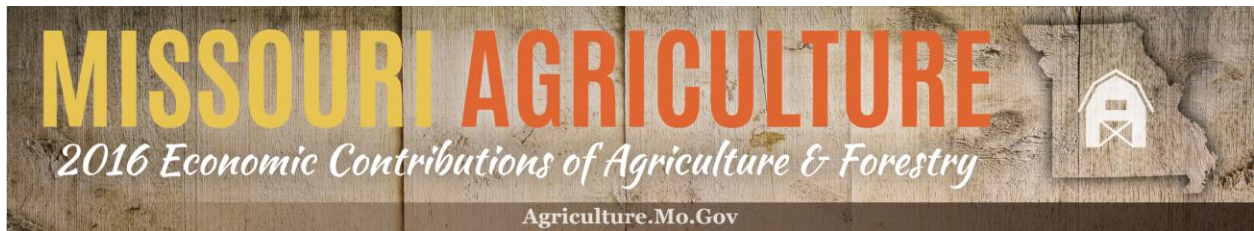
MO Farm Bureau



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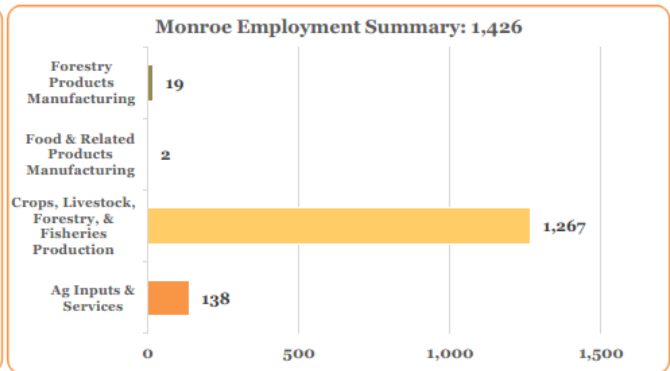
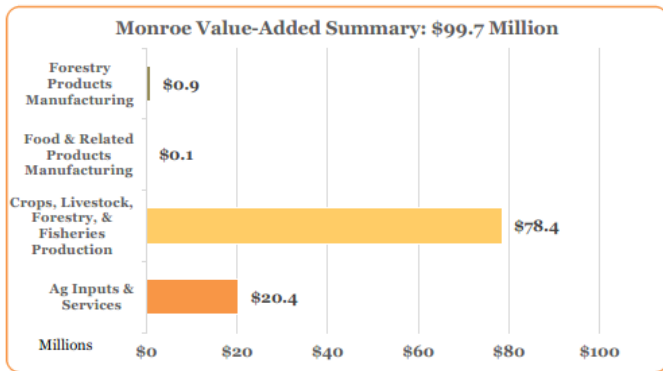


DIS



MONROE COUNTY

Overall Top Three Contributors (Ranked by Value-Added)						
	Inputs (\$M)	+	Value-Added (\$M)	=	Sales (\$M)	Employment
Oilseed farming	\$10.9		\$30.2		\$41.1	138
Hogs	\$4.6		\$25.5		\$30.1	546
Pesticide and other agricultural chemical mfg	\$58.0		\$20.0		\$78.0	120

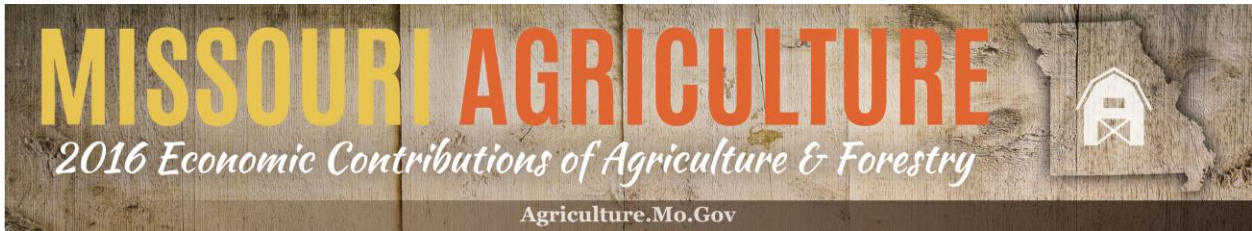


Crops, Livestock, Forestry & Fishery Production - Top Three Contributors (Ranked by Value-Added)						
	Inputs (\$M)	+	Value-Added (\$M)	=	Sales (\$M)	Employment
Oilseed farming	\$10.9		\$30.2		\$41.1	138
Hogs	\$4.6		\$25.5		\$30.1	546
Beef cattle ranching and farming	\$10.4		\$10.5		\$20.9	213

Note: Totals in tables may not sum due to rounding.

Overall Contributions to Monroe County

Agricultural, forestry, and related industries support 1,426 jobs in Monroe County. Additionally, these industries contribute \$211.3 million in sales, which translates to \$99.7 million in added value to the area after \$111.5 million worth of inputs are purchased. Of this \$99.7 million, \$41.9 million is comprised of labor income. Tax revenues generated by the agricultural, forestry, and related industries in Monroe County are \$12.4 million.



RALLS COUNTY

Economic Contributions of Agriculture, Forestry & Related Industries:

Sales: \$1.3 billion

Jobs: 2,231

Value-Added: \$195.5 million

Labor Income: \$98.7 million

Inputs: \$1.1 billion

Taxes: \$38.3 million

Sales: The broadest measure of economic activity - often referred to as “output”; **Employment (Jobs):** A measure of job positions without regard to whether they are full-time equivalents; **Value-Added:** Sales (output) minus the cost of inputs; **Taxes:** Includes taxes paid at the federal, state and local levels.

Economic Contributions						
	Inputs (\$M)	+	Value-Added (\$M)	=	Sales (\$M)	Employment
Ag Inputs & Services	\$0.6		\$0.9		\$1.5	29
Crops, Livestock, Forestry, & Fisheries Production	\$37.6		\$64.7		\$102.3	923
Food & Kindred Products Manufacturing	\$1,031.9		\$125.5		\$1,157.4	1,201
Forestry Products Manufacturing	\$7.4		\$4.3		\$11.7	80
Total	\$1,077.5		\$195.5		\$1,272.9	2,231

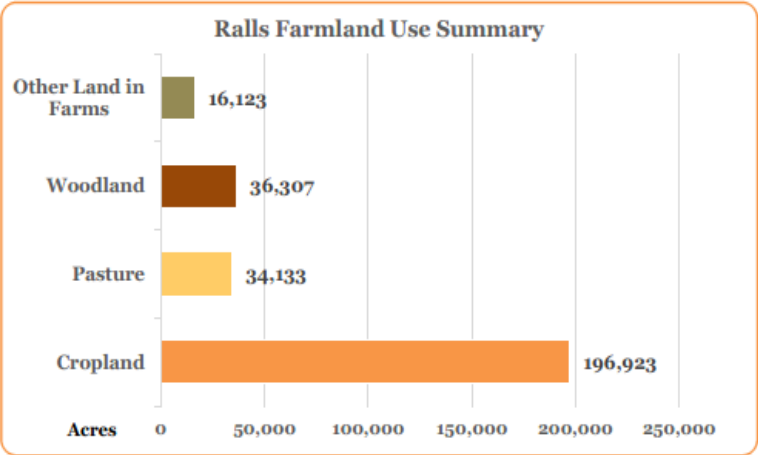
Number of Farms: 723 farms

Average Size of Farm: 392 acres

Total Land Area: 300,660 acres

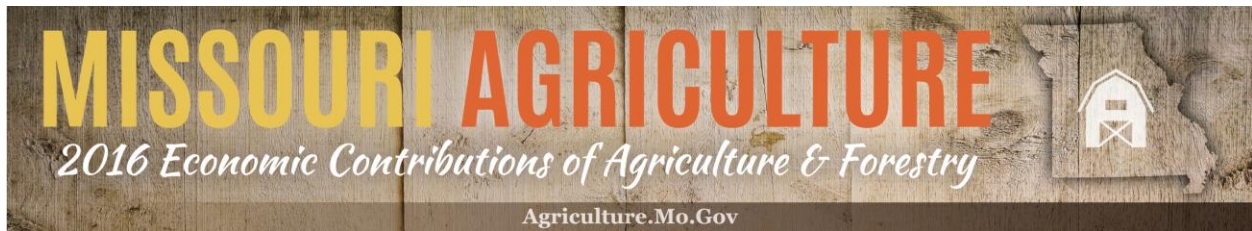
Total Land in Farms: 283,486 acres

Population (2015): 10,196



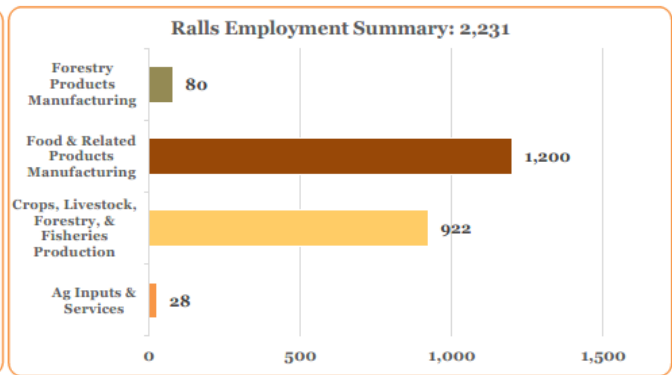
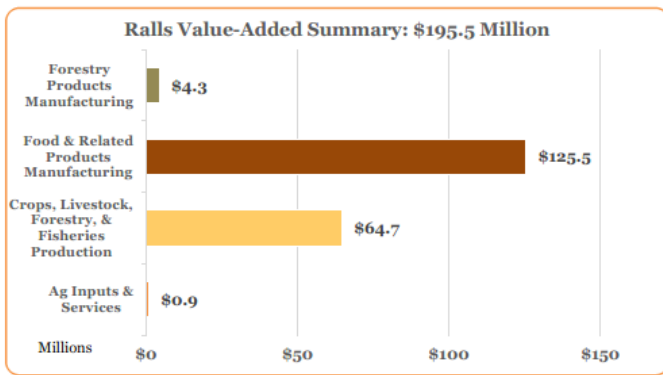
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RALLS COUNTY

Overall Top Three Contributors (Ranked by Value-Added)						
	Inputs (\$M)	+	Value-Added (\$M)	=	Sales (\$M)	Employment
Soybean and other oilseed processing	\$721.1		\$62.9		\$784.0	394
Meat processed from carcasses	\$275.5		\$57.8		\$333.3	732
Oilseed farming	\$8.3		\$23.2		\$31.5	88

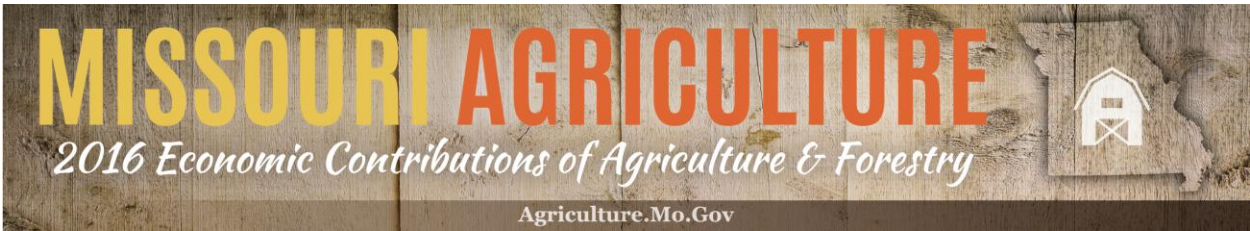


Crops, Livestock, Forestry & Fishery Production - Top Three Contributors (Ranked by Value-Added)						
	Inputs (\$M)	+	Value-Added (\$M)	=	Sales (\$M)	Employment
Oilseed farming	\$8.3		\$23.2		\$31.5	88
Other Livestock	\$2.3		\$13.6		\$15.9	265
Horses	\$1.9		\$11.4		\$13.3	222

Note: Totals in tables may not sum due to rounding.

Overall Contributions to Ralls County

Agricultural, forestry, and related industries support 2,231 jobs in Ralls County. Additionally, these industries contribute \$1.3 billion in sales, which translates to \$195.5 million in added value to the area after \$1.1 billion worth of inputs are purchased. Of this \$195.5 million, \$98.7 million is comprised of labor income. Tax revenues generated by the agricultural, forestry, and related industries in Ralls County are \$38.3 million.



RANDOLPH COUNTY

Economic Contributions of Agriculture, Forestry & Related Industries:

Sales: \$303.7 million

Jobs: 1,605

Value-Added: \$82.7 million

Labor Income: \$43.2 million

Inputs: \$221.0 million

Taxes: \$15.8 million

Sales: The broadest measure of economic activity - often referred to as “output”; **Employment (Jobs):** A measure of job positions without regard to whether they are full-time equivalents; **Value-Added:** Sales (output) minus the cost of inputs; **Taxes:** Includes taxes paid at the federal, state and local levels.

Economic Contributions						
	Inputs (\$M)	+	Value-Added (\$M)	=	Sales (\$M)	Employment
Ag Inputs & Services	\$0.8		\$0.7		\$1.6	21
Crops, Livestock, Forestry, & Fisheries Production	\$29.3		\$43.0		\$72.3	1,097
Food & Kindred Products Manufacturing	\$183.5		\$34.2		\$217.7	407
Forestry Products Manufacturing	\$7.4		\$4.7		\$12.1	81
Total	\$221.0		\$82.7		\$303.7	1,605

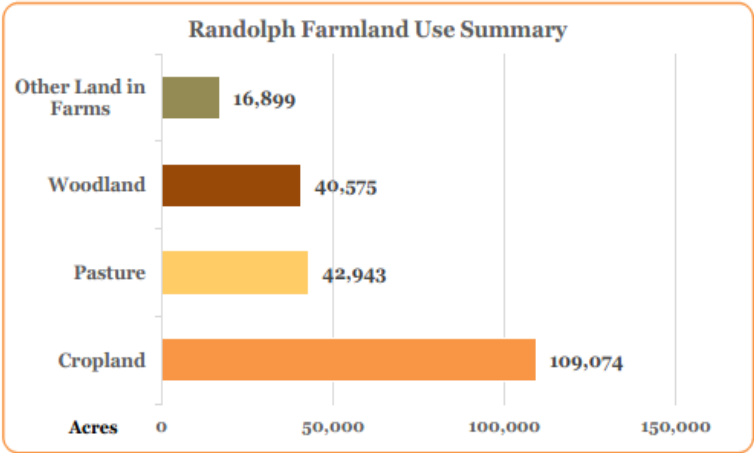
Number of Farms: 818 farms

Average Size of Farm: 256 acres

Total Land Area: 308,936 acres

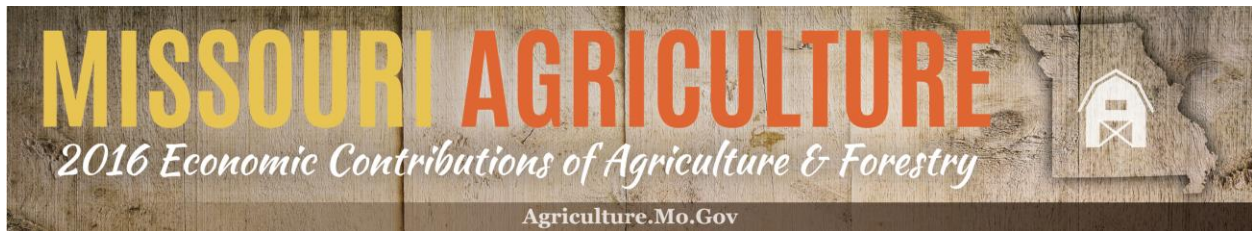
Total Land in Farms: 209,491 acres

Population (2015): 25,104



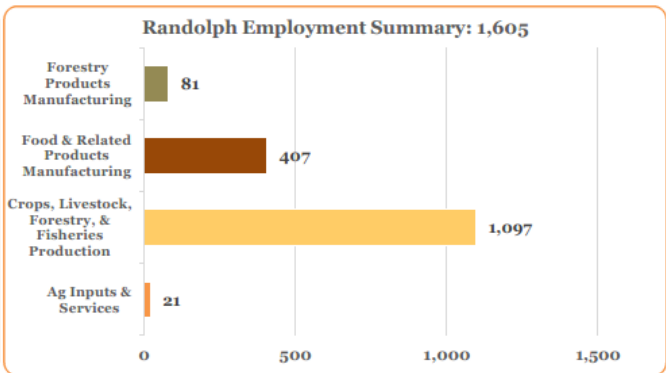
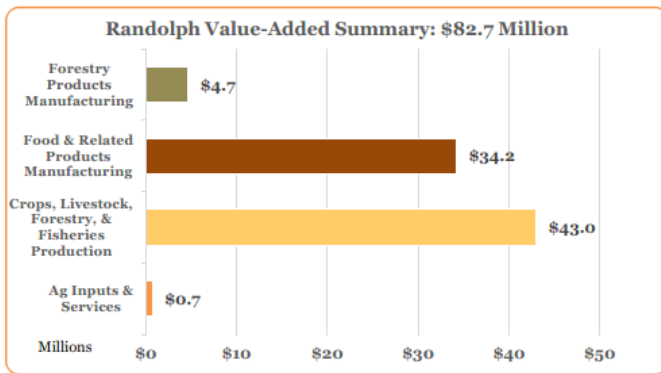
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RANDOLPH COUNTY

Overall Top Three Contributors (Ranked by Value-Added)						
	Inputs (\$M)	+	Value-Added (\$M)	=	Sales (\$M)	Employment
Soybean and other oilseed processing	\$140.4		\$25.9		\$166.3	281
Oilseed farming	\$5.0		\$13.0		\$18.0	92
Beef cattle ranching and farming	\$9.2		\$9.2		\$18.4	294



Crops, Livestock, Forestry & Fishery Production - Top Three Contributors (Ranked by Value-Added)						
	Inputs (\$M)	+	Value-Added (\$M)	=	Sales (\$M)	Employment
Oilseed farming	\$5.0		\$13.0		\$18.0	92
Beef cattle ranching and farming	\$9.2		\$9.2		\$18.4	294
Horses	\$1.7		\$6.5		\$8.2	225

Note: Totals in tables may not sum due to rounding.

Overall Contributions to Randolph County

Agricultural, forestry, and related industries support 1,605 jobs in Randolph County. Additionally, these industries contribute \$303.7 million in sales, which translates to \$82.7 million in added value to the area after \$221.0 million worth of inputs are purchased. Of this \$82.7 million, \$43.2 million is comprised of labor income. Tax revenues generated by the agricultural, forestry, and related industries in Randolph County are \$15.8 million.