2019 Iowa Agricultural Economic Contribution Study

Prepared for: COALITION TO SUPPORT IOWA'S FARMERS

Prepared by: Decision Innovation Solutions™
Bridging Your Research Needs.

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Table 1, Acronyms

Acronym	Description
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

Executive Summary

The results of this study indicate that although there have been struggles in the agriculture industry, it is still a very important part of Iowa's economy, supporting about 1 in every 5 jobs across Iowa. While there was a varying degree of increases and reductions for the components of economic contribution, the livestock industry and further processing in Iowa has expanded jobs and value-added for the economy.

This study is based on a combination of the 2017 Census of Agriculture, USDA/NASS datasets, and the IMPLAN modeling system. This analysis is patterned after the Iowa Agriculture Economic Contribution Studies completed in 2009 and 2014 which allows us to analyze change over time.

Key Findings

In 2017, agriculture and related industries in Iowa are estimated to contribute:

- **$39.7 billion** in total value-added
  - Total value-added decreased slightly from about $39.9 in the 2014 study.
- **399,631 jobs** which represents almost **20%** of total Iowa jobs
  - Total ag-related jobs have decreased from 418,771 in 2014.
- **$121.1 billion** in output (sales)
  - Total output has increased from $112.2 billion in 2014.
- **$22.2 billion** in household income
  - Household income declined slightly from $24.4 billion in the 2014 study.

Of the **$39.7 billion** in total value-added and **399,631 jobs** from the agriculture industry and related economic activity:

- Crop production and related industries contributed:
  - **$11.1 billion** in value-added
  - **111,965 jobs** which has declined from 183,379 in the 2014 study.
- Livestock production and related industries contributed:
  - **$15.8 billion** in value-added
  - **185,985 jobs** which has increased from 122,764 in the 2014 study.
- Other agriculture and related industries contributed:
  - **$12.9 billion** in value-added
  - **101,681 jobs** which has declined slightly from 112,627 in the 2014 study.

Background

This Iowa Agriculture Economic Contribution Study quantifies agriculture and its related industries and its contribution to the economy. This study relies heavily on the 2017 data from the IMPLAN modeling system, the USDA 2017 Census of Agriculture, and other USDA/NASS datasets. This study is patterned after similar studies completed by Decision Innovation Solutions for Iowa in 2009 and 2014, South Dakota in 2014 and 2019, Illinois in 2015 and 2019 (forthcoming), and Alabama in 2016.

Iowa Agriculture

The Iowa agriculture industry has continued to be a leader in crop and livestock production even during down times in the industry. Iowa is currently ranked the #1 state in the nation for[1]:

- All Hogs and Pigs Inventory
- All Hogs and Pigs Value
- All Layers Inventory
- Animal Products Export Value (2017)
- Commercial Hog Slaughter
- Egg Production
- Pig Crop
- Pork Export Value (2017)
- Corn Export Value (2017)
- Corn for Grain Production
- Feeds and Other Grains Export Value (2017)
- Harvested Acreage of Principal Crops
- Off-Farm Grain Storage Capacity
- On-Farm Grain Storage Capacity
- Total Grain Storage Capacity

The list above and the following rankings show Iowa's ability to be a leading producer of various crops and livestock. These rankings demonstrate the importance of Iowa to help feed, clothe and fuel those beyond Iowa and the U.S. According to 2018 data from the USDA National Statistics Service, Iowa is currently ranked in the top ten states for:

- Cash Receipts (2017)
- Farm Production Expenditures
- Principal Crops Total Value (2017)
- Commercial Red Meat Production
- Field and Miscellaneous Crops Value
- Soybean Export Value (2017)
- Soybean Production
- Total Value of Agricultural Exports (2017)
- Cash Rent per Acre for Cropland
- Milk Goat Inventory
- Net Farm Income (2017)
- Number of Farms
- Beef Export Value (2017)
- Cattle on Feed Inventory, January 1
- Inventory of Steers 500 Lbs and over
- Average Value of Cropland

[1] https://www.nass.usda.gov/Statistics_by_State/Iowa/Publications/Rankings/IA-2019-Rankings.pdf

- Total Market Sheep & Lambs Inventory
- All Cattle & Calves Value
- Number of USDA Certified Organic Farms (2017)
- Turkeys Raised
- All Cattle & Calves Inventory
- Alfalfa Hay Production
- Cheese Production
- Oat Production
- Corn for Silage Production
- Sheep Shorn
- Beef Cows that have Calved Inventory
- Calf Crop
- Land in Farms
- All Sheep and Lambs Inventory
- Total Sheep and Lambs Inventory
- Total Breeding Sheep & Lambs Inventory
- Total Lamb Crop
- Wool Production

Iowa Farm Demographics

Figure 1 displays the breakdown of Iowa farm operations by size, according to the 2017 Census of Agriculture. The smaller size farms are typically hobby or specialty farms, while the farm operations larger in size generally make up the majority of farm sales. The most common farm size in Iowa is the 10 to 50-acre category with 18,183 farms, followed by 11,754 farms at 260 to 499 acres, and 10,381 farms with a size of 500 to 999 acres. There are only 1,892 farms in Iowa in the largest size category of 2,000 or more acres.

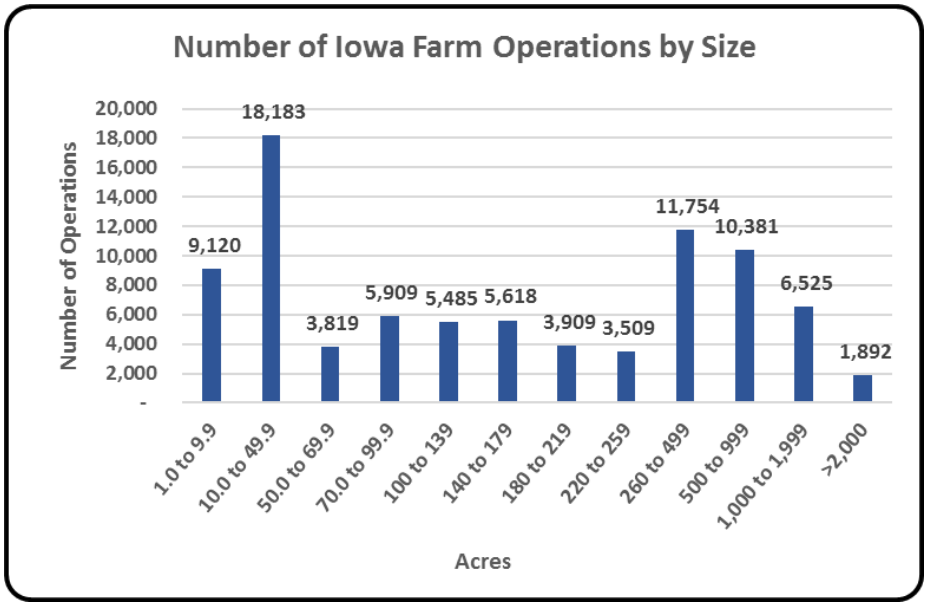

Figure 1, Number of Iowa Farm Operations by Size

Of the 86,104 farms in Iowa, 83% are held by families and individuals, while an additional 9% are family-held corporations, and 6% in partnerships. Less than 1% of Iowa farms are in a corporation that is not family-held.

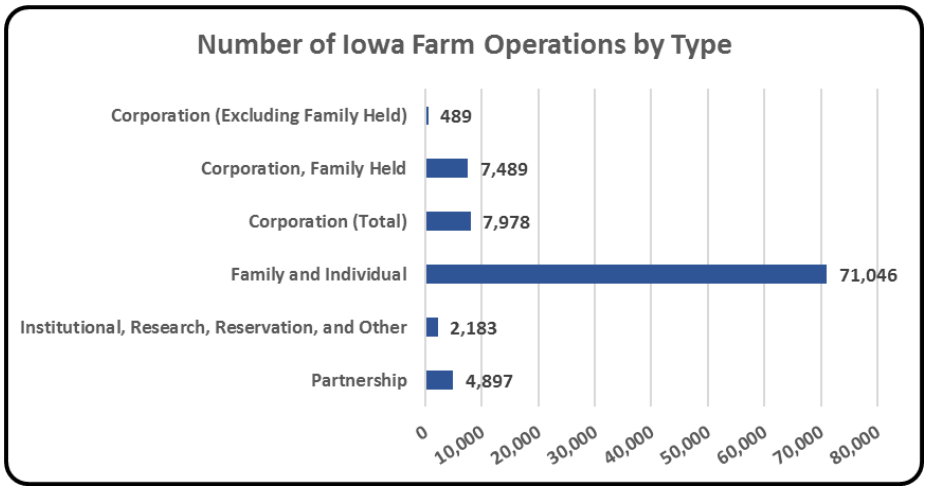

Figure 2, Number of Iowa Farm Operations by Type

According to the 2017 Census of Agriculture, there were 86,104 farms in Iowa in 2017. This number declined 2.9% from 88,637 farms in 2012. The average size of an Iowa farm in 2017 was 355 acres versus 345 acres in 2012. Since 1997, farm size has fluctuated between 331 acres and 355 acres. While the value of land and buildings, and machinery and equipment has continued to rise, the value of farm products sold declined slightly from 2012 to 2017 contributing to the current financial stress faced by some farms.

Table 2, Historical Iowa USDA Census of Agriculture Data

	2017	2012	2007	2002	1997
Number of Iowa Farms	86,104	88,637	92,856	90,655	96,705
Average Iowa Farm Size (acres)	355	345	331	350	334
Market Value (per farm)					
Land and Buildings ($)	$2,506,812	$2,207,220	$1,122,023	$707,730	$559,678
Machinery and Equipment ($)	$230,716	$213,856	$136,771	$100,422	$79,607
Farm Products Sold ($)	$336,296	$347,728	$219,890	$135,388	$125,766
Livestock Inventory					
Cattle & Calves	3,950,920	3,893,683	3,982,344	3,535,945	3,717,394
Beef Cows	938,818	885,568	904,100	987,670	1,051,178
Milk Cows	223,579	204,757	215,391	206,965	222,090
Hogs and Pigs	22,730,540	20,455,666	19,295,092	15,486,531	14,513,319
Laying Chickens	56,554,774	52,218,870	53,793,712	38,650,210	21,514,768
Turkeys	4,793,219	4,383,172	4,002,111	3,681,862	2,552,845
Cattle and Calves Sold	3,595,241	3,446,109	3,635,880	2,929,704	2,936,978
Hogs and Pigs Sold	60,292,876	49,355,848	47,279,443	41,232,492	27,340,921
Production (bushels)					
Corn for Grain	2,583,967,870	1,835,358,239	2,292,163,101	1,851,276,224	1,581,093,092
Oats for Grain	2,786,849	3,868,538	4,481,462	10,761,952	14,451,930
Soybeans	553,576,064	406,951,953	430,739,578	487,380,897	459,309,682

Since the value of crop sales has declined from 2012 to 2017 and livestock and poultry production sales have increased, the percent of total sales by source has shifted from relying more heavily on crops to livestock in the State of Iowa, which is similar to 2002.

Table 3, Iowa Farm Sales by Source

Farm Sales by Source (Iowa)	2017	% of 2017 Total	2012	% of 2012 Total	2007	% of 2007 Total	2002	% of 2002 Total
Total Sales ($1000)	$28,956,455	100%	$30,821,532	100%	$20,418,096	100%	$12,273,634	100%
Average Per Farm	$336,296		$347,728		$219,890		$135,388	
Grains & Oilseeds ($1000)	$13,832,573	48%	$17,366,814	56%	$10,343,585	51%	$6,071,272	49%
Livestock, Poultry, and Their Products ($1000)	$15,123,882	52%	$13,454,718	44%	$10,074,511	49%	$6,202,362	51%
Poultry and Eggs ($1000)	$1,579,664	5%	$1,291,808	4%	$872,263	4%	$511,949	4%
Cattle and Calves ($1000)	$4,760,338	16%	$4,504,373	15%	$3,606,633	18%	$2,119,935	17%
Milk & Other Dairy Products from Cows ($1000)	$868,320	3%	$799,467	3%	$689,680	3%	$442,431	4%
Hogs and Pigs ($1000)	$7,796,511	27%	$6,767,424	22%	$4,827,224	24%	$3,078,455	25%
Sheep, Goats, and Their Products ($1000)	$61,679	0%	$43,020	0%	$40,199	0%	$23,366	0%
Other Animals and Their Products ($1000)	$13,814	0%	$26,186	0%	$22,324	0%	$10,276	0%

Methodology

The 2019 Iowa Agriculture Economic Contribution Study was completed with a combination of the 2017 Iowa IMPLAN dataset, data from the USDA 2017 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. Results, shown as 2017 values throughout this report are presented using these common economic modeling terms:

- **Value-Added**
  - Sales (output) minus the cost of inputs
- **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
- **Household Income**
  - Income from all sources that accrues to individuals as payment for personal employment (earnings or labor income), payment for ownership interests or capital provision (dividends, interest and rents), or as transfer payments (payments to individuals for which nothing is offered in return)

Defining Agriculture

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.

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, restaurants and retail.

To strike middle (and defensible) ground between including more than just farm level production and seeking to attribute excess economic activity to the 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).

Using the above rationale as a guide, the IMPLAN models were created and analyzed using the recommended methodology for a Multi-Industry Contribution Analysis. 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. There were sixty-five IMPLAN sectors identified for this analysis to represent agriculture and related economic activities in the State of Iowa.

Economic Impact Study versus Economic Contribution Study

The term "Economic Impact Study" implies a change has taken place within a local economy. The change in a local economy typically comes from one of the following sources:

- Entrance/departure of a new business or industry
- Expansion/contraction of an existing business or industry

While estimating a change (economic impact study) such as the entrance or departure of industry activity is a worthwhile endeavor in many instances, this is not how the contribution of the agri-food sector in this analysis was estimated. This analysis is an effort to evaluate the structure of existing industries within an existing economy. As a result, shocking the economy to create or eliminate parts of the industry is not appropriate. For that reason, this study is called an "economic contribution analysis"; in other words, we are interested in understanding what Iowa agriculture currently contributes to the overall economy. This is a key difference from what is traditionally termed an "economic impact study". With a contribution analysis, the sum of individual industry estimates will never differ from the total of what actually exists in a given study area.

State Level Results

The sixty-five IMPLAN sectors identified (and present in Iowa) for this study were aggregated into three main categories to provide an overview of the economic contribution of these industries. These aggregated industries are:

- Crops
- Livestock
- Other Agriculture

Further details on the industries included in each of these categories are shown in the 'Detailed Results' section of the report and also in Appendix A.

State Value-Added

Total value-added refers to the portion of total sales that actually created additional value from the economic activity in an area and/or industry and is an accurate indicator of the ability of an industry to improve economic prospects in a given area. Total value-added for an industry represents the value of the industry's total sales minus the value of any inputs used in the production process from other industries. Key components of value-added are employee compensation (hired labor) and proprietor's income (self-employed), which is collectively known as 'labor income'.

The agriculture industry and related economic activity add a significant contribution to the Iowa economy with about $39.7 billion in value-added. Of this amount, $15.8 billion comes from the Livestock category, $12.9 billion from Other Agriculture, and $11.1 billion from the Crops category.

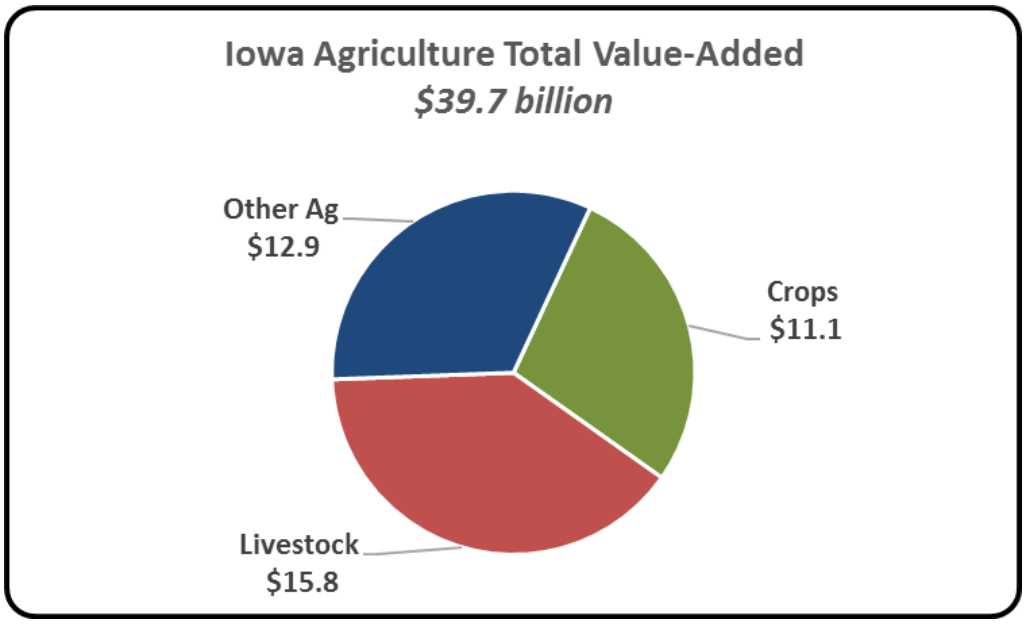

Figure 3, Iowa Agriculture Total Value-Added

State Jobs

The jobs[2] number represents an estimate of the number of positions (jobs) currently filled in an area or industry. The estimates provided here originate from the IMPLAN input-output model. Jobs includes positions whether they are full or part time, so care must be used in making comparisons. "Jobs" does not count positions that are unfilled.

As shown in Figure 4, Iowa's agriculture industry and related economic activities contribute a sizeable amount of jobs to the economy with about 399,631 jobs. Of this amount, 185,985 jobs come from the Livestock category, 111,965 from Crops, and 101,681 from Other Agriculture.

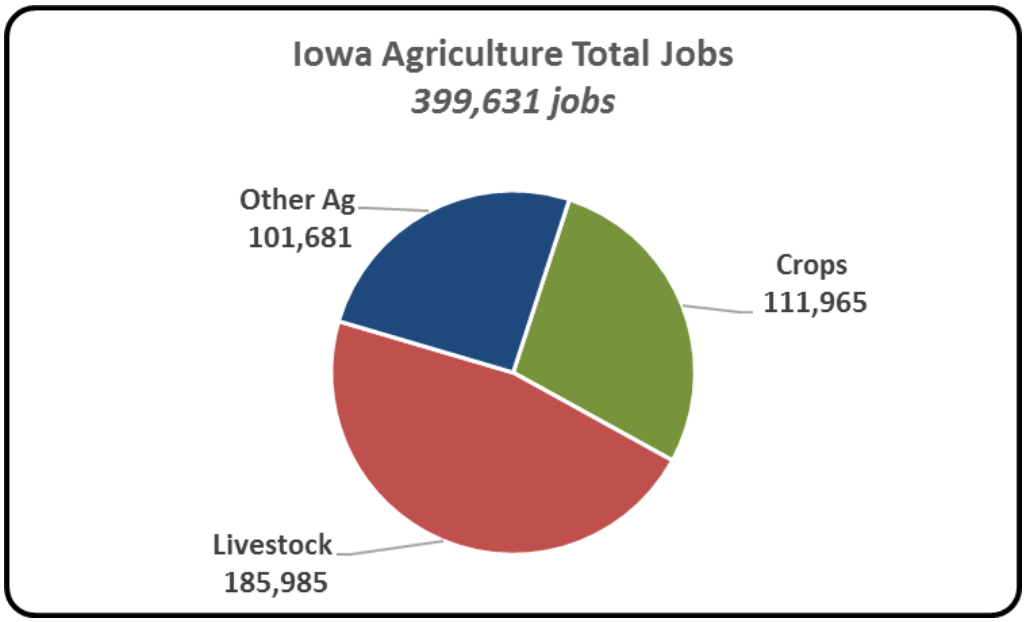

Figure 4, Iowa Agriculture Total Jobs

[2] Jobs do not refer to the number of people working or to full-time equivalent employment. Jobs can be full or part time, and a single individual can hold multiple jobs. In short, jobs cannot be looked upon as interchangeable or comparable across industries, businesses, or locations.

State Output

Total output (sales) refers to the total value of all production or sales of the identified industries within a study area. This is a total number that does not make deductions for the cost or origination of inputs that were used in the production process, which means that there is some double counting that occurs with this measure of economic activity. Figure 5 illustrates the contribution of agriculture and related industries to Iowa's economy. As shown, Iowa's agriculture industry and related economic activities contribute significantly to the state economy with about $121.1 billion in total output.

Of this amount, $48.5 billion comes from Livestock, $37.7 from Crops, and $35.0 from Other Agriculture.

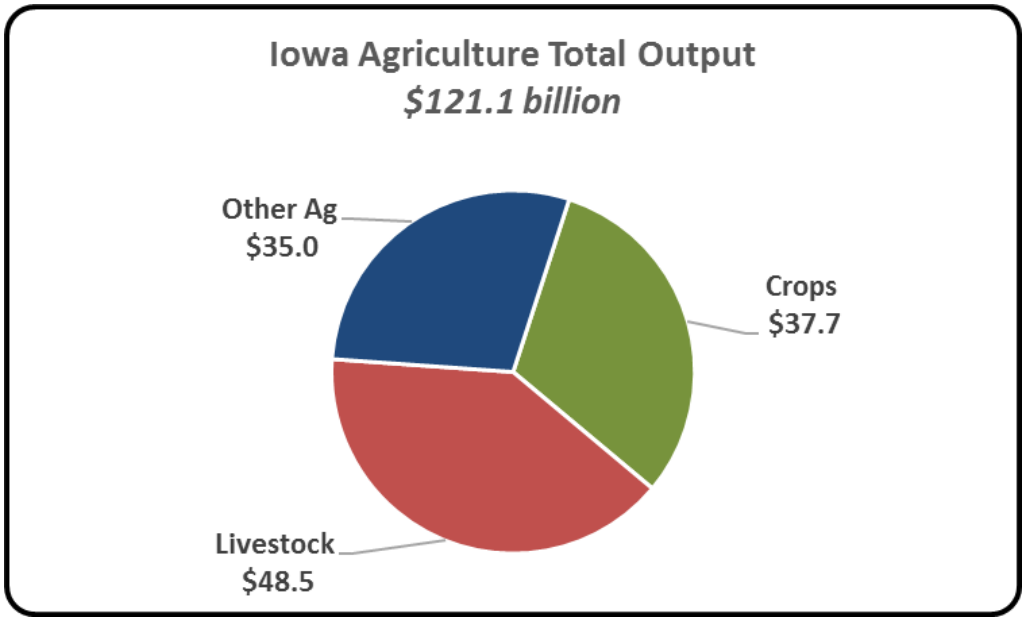

Figure 5, Iowa Agriculture Total Output

State Household Income

Household income is defined as income from all sources that accrues to individuals as payment for personal employment (earnings or labor income), payment for ownership interests or capital provision (dividends, interest and rents), or as transfer payments (payments to individuals for which nothing is offered in return). Figure 6 illustrates the contribution of each of the four categories to Iowa's total household income. As shown, Iowa's agriculture industry and related economic activities contribute about $22.2 billion in household income to the economy.

Of this amount, $10.5 billion comes from Livestock, $6.7 billion from Other Agriculture, and $5.0 billion from Crops.

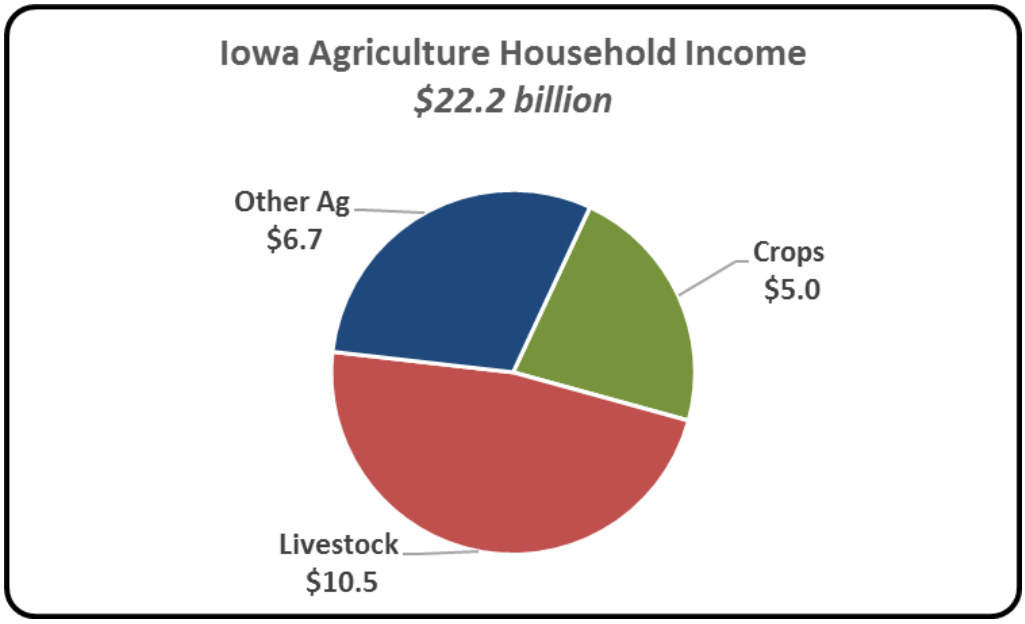

Figure 6, Iowa Agriculture Household Income

Detailed Results

The previous section showed the state level results by the three major categories: 1) Crops, 2) Livestock and 3) Other Agriculture. The following section shows the results by industry within each of the three major categories to show which specific industries are major contributors. Goods and services used by the agriculture industry to operate such as banking and insurance are not specifically shown, but they are embedded as required inputs for the agriculture industry and related economic activities.

Crops

The Crops category includes industries such as grain and oilseed farming, soybean processing and more. Total value-added contributed to the Iowa economy from crops was $11.1 billion (see Figure 7). Crop production and related economic activity in Iowa also accounted for 111,965 jobs (see Figure 8), $37.7 billion in output, and nearly $5.0 billion in household income. The 'Primary Food Processing – Crops' category was a major contributor in this area which shows how important processing is to the value chain. This category also includes items such as wet corn milling and soybean processing.

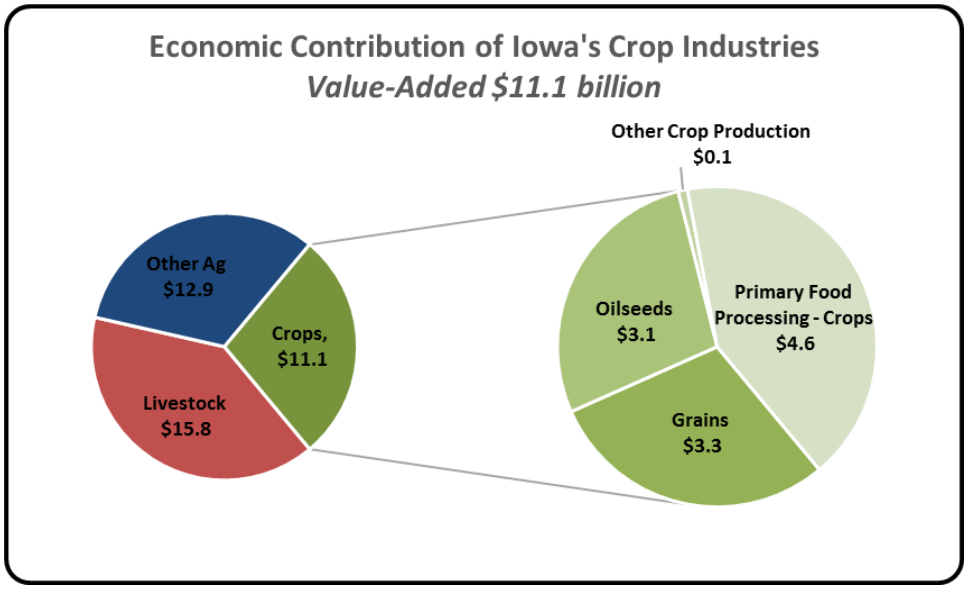

Figure 7, Economic Contribution of Iowa's Crop Industries – Value-Added

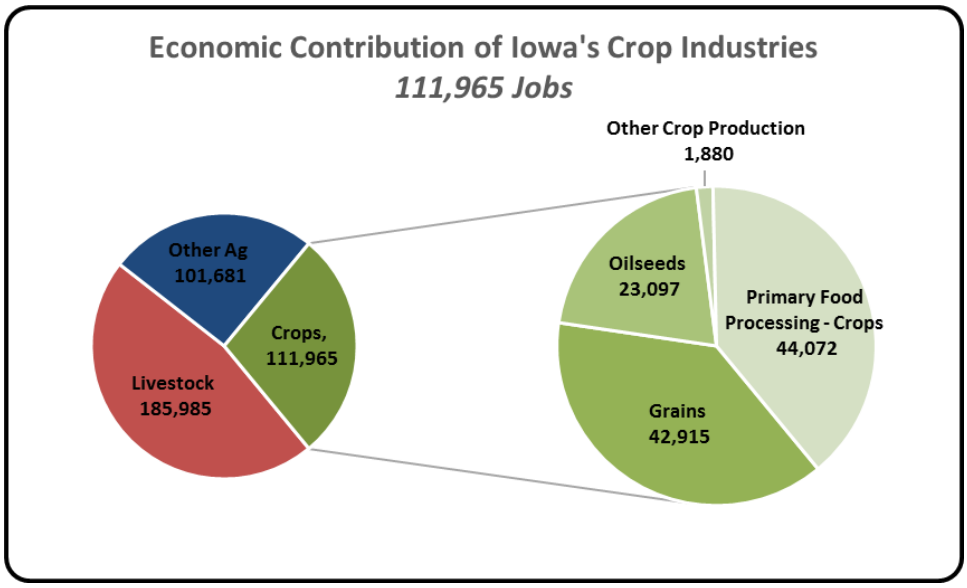

Figure 8, Economic Contribution of Iowa's Crop Industries - Jobs

Livestock

The Livestock category includes industries such as beef cattle production, hog production, dairy cattle, poultry production (layers (egg production), broilers and turkeys), meat/poultry processing rendering and more. Total value-added contributed to the economy from livestock and related economic activity in Iowa was about $15.8 billion (see Figure 9).

Livestock production and related economic activity in Iowa also accounted for 185,985 jobs, $48.5 billion in output, and about $10.5 billion in household income. In addition to the production of livestock and poultry, meat processing is a large contributor to Iowa's economy.

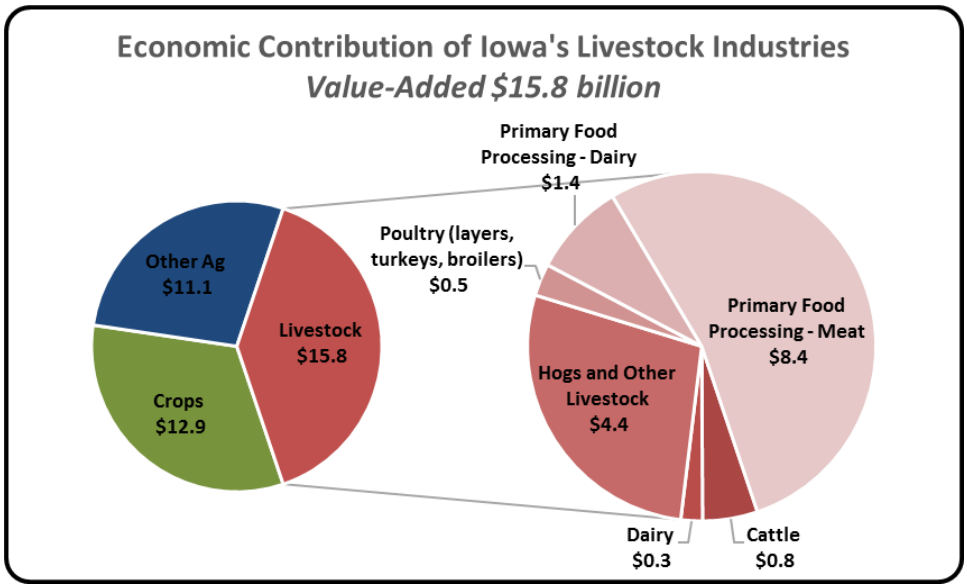

Figure 9, Economic Contribution of Iowa's Livestock Industries – Value-Added

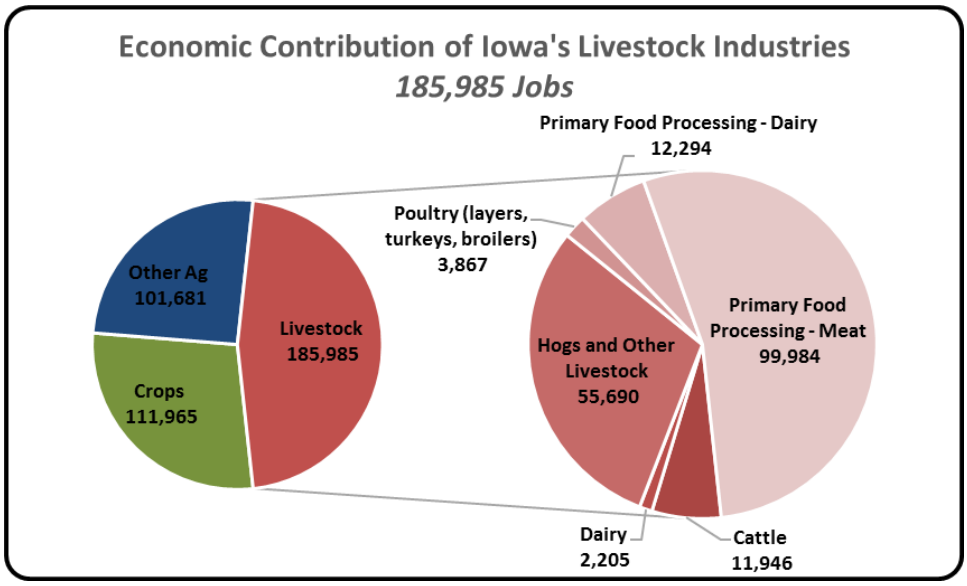

Figure 10, Economic Contribution of Iowa's Livestock Industries - Jobs

Other Agriculture

The Other Agriculture category includes industries such as animal feed production, farm machinery and equipment manufacturing, ethanol production, dog and cat food manufacturing, veterinary services, many food manufacturing industries and more. Total value-added contributed to the economy from Other Agriculture was $12.9 billion (see Figure 11).

Other agriculture and related economic activity in Iowa also accounted for 101,681 jobs, nearly $35.0 billion in output, and about $6.7 billion in household income. Other food processing and farm machinery manufacturing industries were major contributors to the Other Ag category.

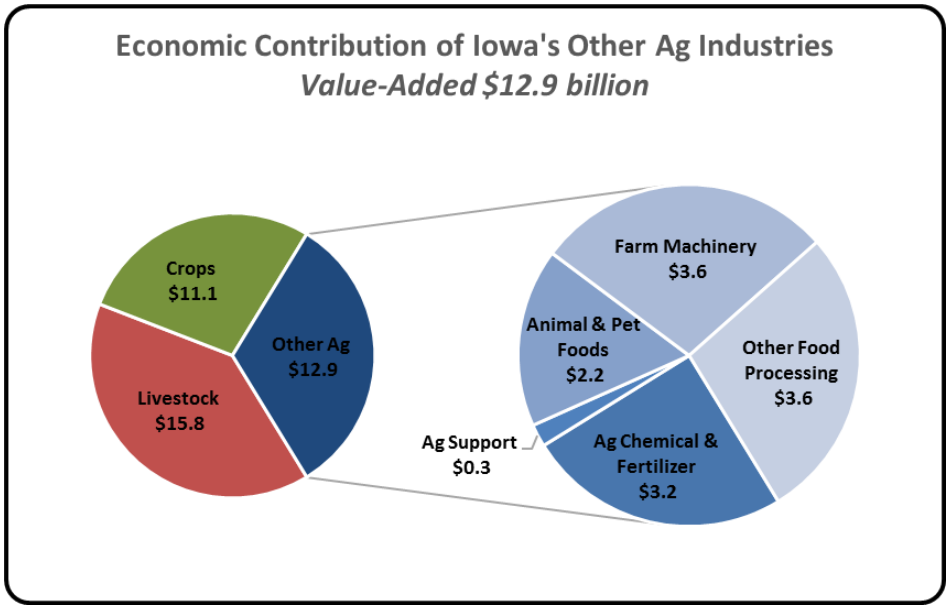

Figure 11, Economic Contribution of Iowa's Other Ag Industries – Value-Added

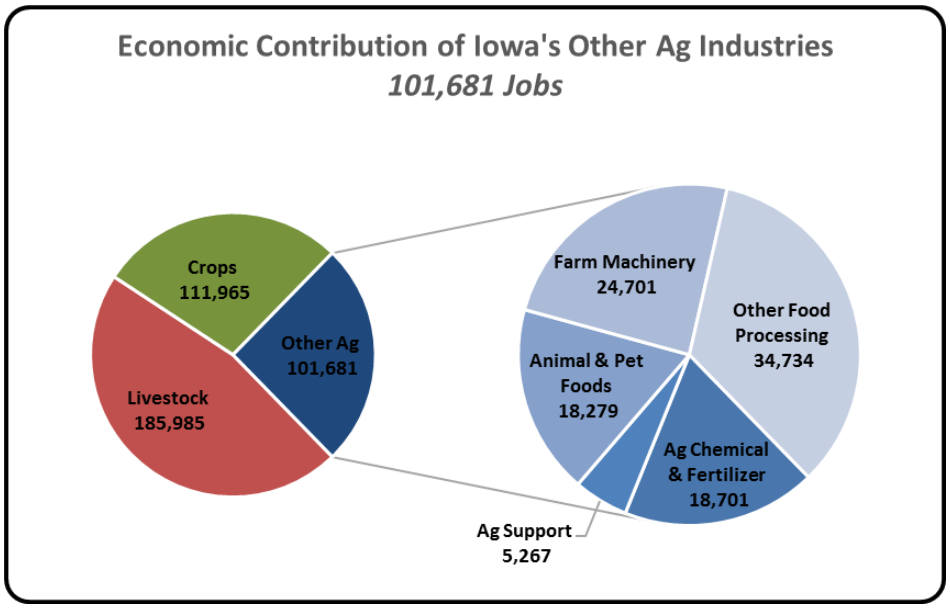

Figure 12, Economic Contribution of Iowa's Other Ag Industries - Jobs

County Level Results

The results presented so far in this report have been focused on the state level, however similar analyses have been performed for all of Iowa's ninety-nine counties. As one would expect, the contribution of agriculture varies widely, not just in terms of total contribution, but the degree to which some counties are more or less reliant upon agriculture in terms of the four primary measures of economic activity (value-added, jobs, output, and household income). While there is variation across counties, a county that is very reliant upon agriculture in terms of value-added is more likely to also be reliant upon agriculture in terms of jobs, output, and household income.

County Value-Added

Figure 13 shows the share of value-added in a local economy that is derived from agriculture and related economic activity. As shown, there are 55 counties that derive more than 30% of their total value-added from the agriculture industry as shown in the three right columns.

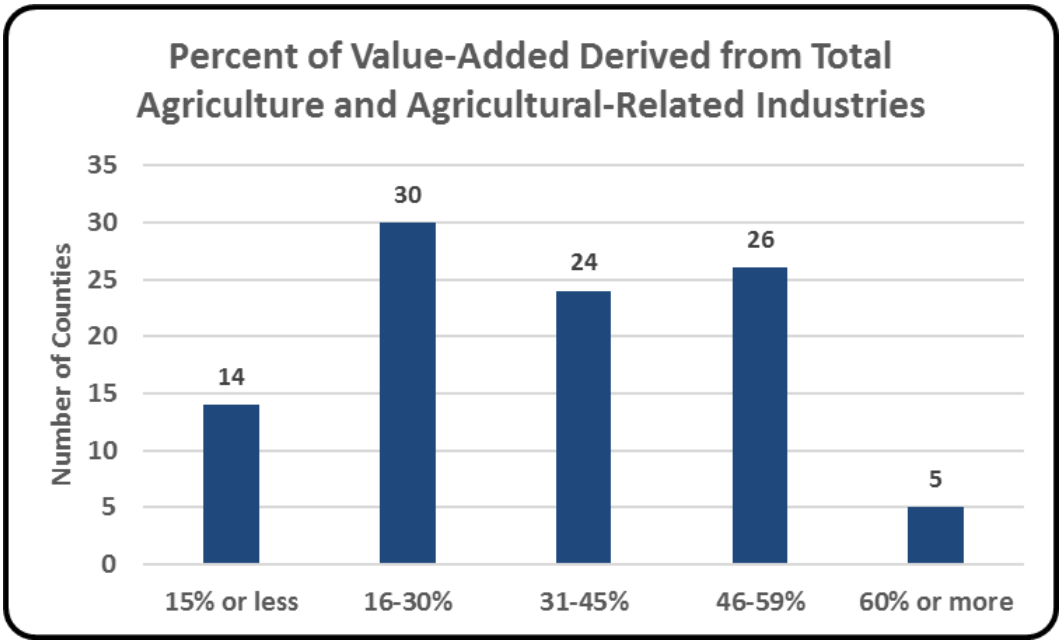

Figure 13, Percent of Value-Added Derived from Total Agriculture and Agricultural-Related Industries

As shown in Figure 14, the top five counties that derive the largest share of their total value-added from the agriculture industry include Tama, Mitchell, Clarke, Crawford and O'Brien counties. On a total dollar basis, the leading counties for value-added from the agriculture industry in Iowa include Linn, Polk, Black Hawk, Woodbury, and Sioux counties (see Figure 15). See Appendix B for detailed value-added county maps for crops, livestock and other ag.

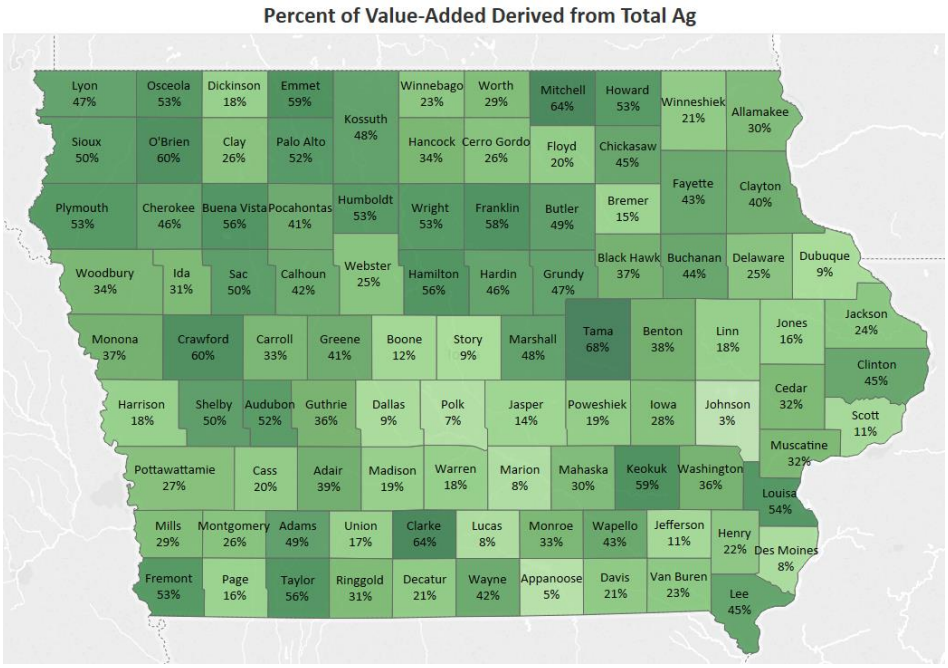

Figure 14, Percent of Value-Added Derived from Total Ag

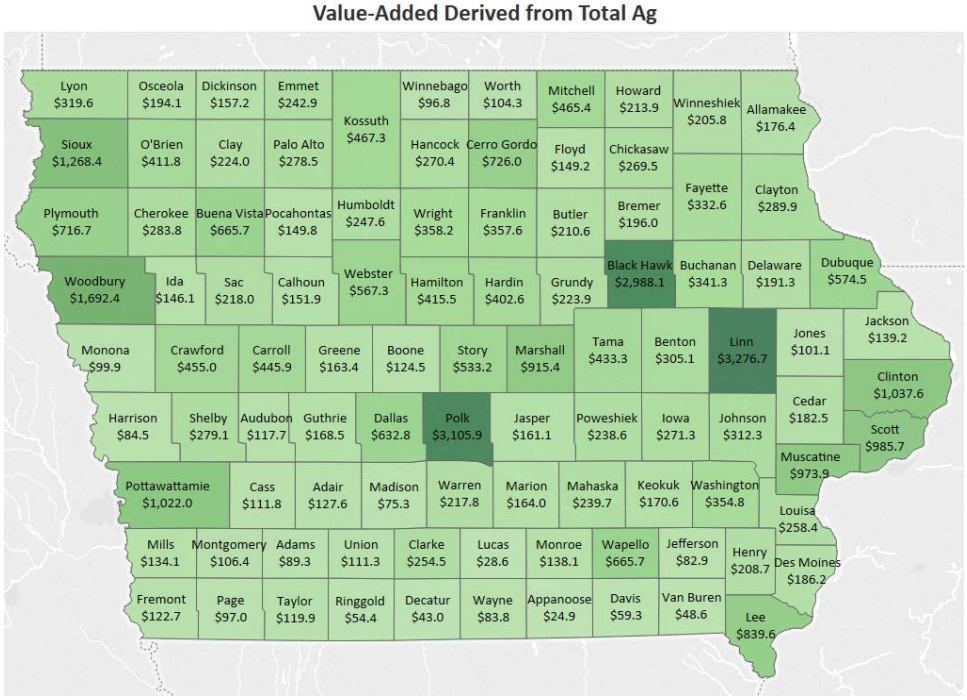

Figure 15, Value-Added Derived from Total Ag

County Jobs

Figure 16 shows the share of jobs derived from agriculture and related economic activity at the county level. As shown, there are 44 counties in the State of Iowa that derive more than 30% of their local jobs from the agriculture industry as shown in the three right columns.

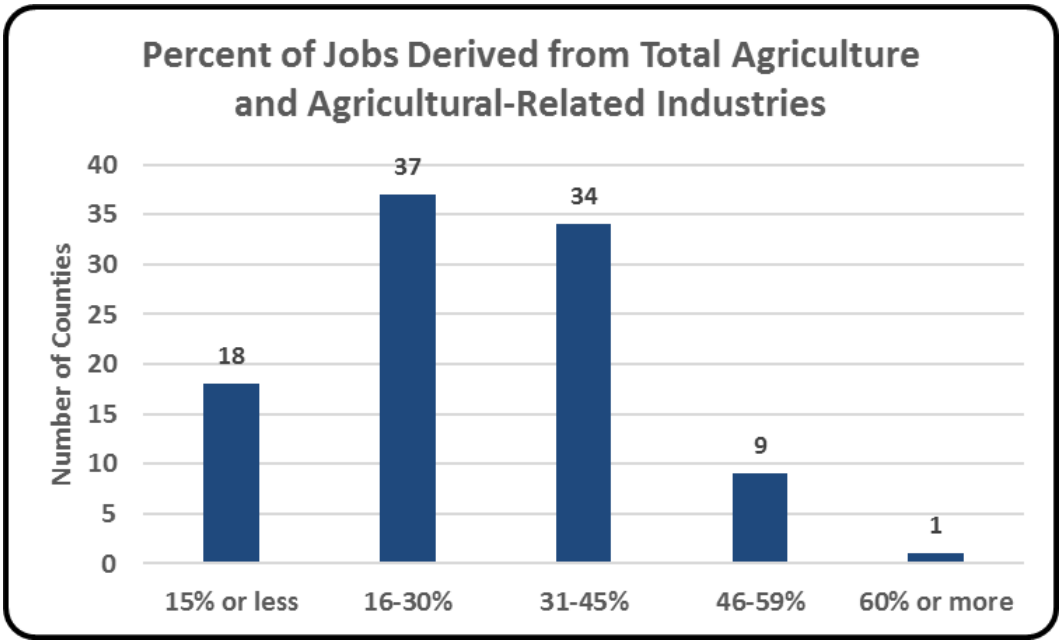

Figure 16, Percent of Jobs Derived from Total Agriculture and Agricultural-Related Industries

The top five counties that rely most heavily on agriculture as a percent of total jobs include Tama, Clarke, Crawford, Osceola, and Keokuk counties (see Figure 17). When looking at jobs, the leading counties for total jobs from the agriculture industry in Iowa include Polk, Black Hawk, Linn, Woodbury, and Pottawattamie counties (see Figure 18). See Appendix B for detailed county jobs maps for crops, livestock and other ag.

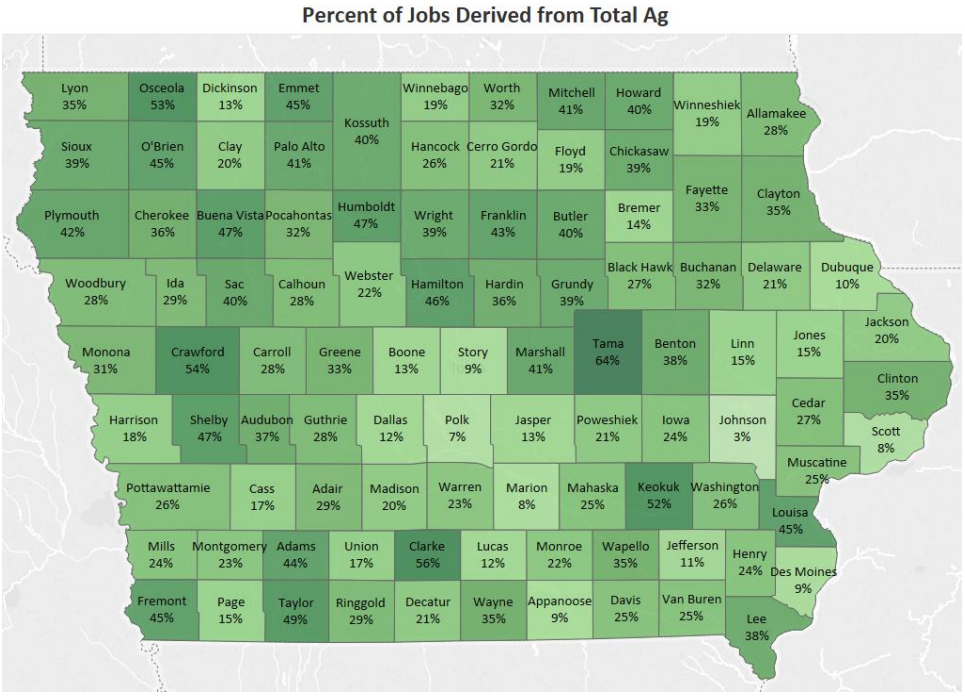

Figure 17, Percent of Jobs Derived from Total Ag

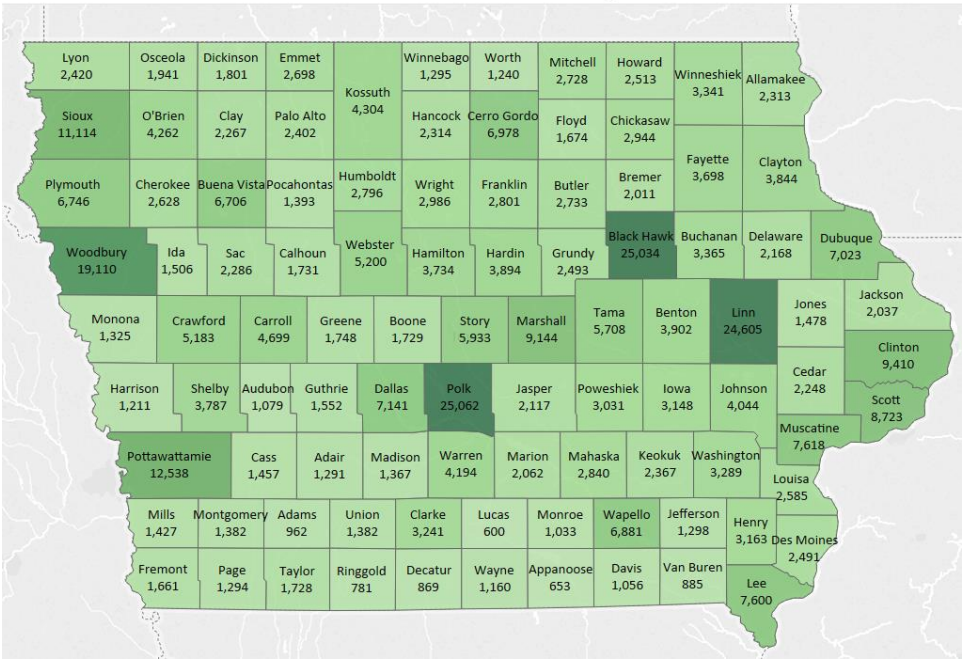

Figure 18, Jobs Derived from Total Ag

Congressional District Results

The results of this study also show the importance of agriculture at the Congressional District level.

Value-Added

The percent of value-added generated from agriculture and related industries ranges from 10% in the 3rd Congressional District ($6.1 billion) to 37% in the 4th Congressional District ($15.1 billion).

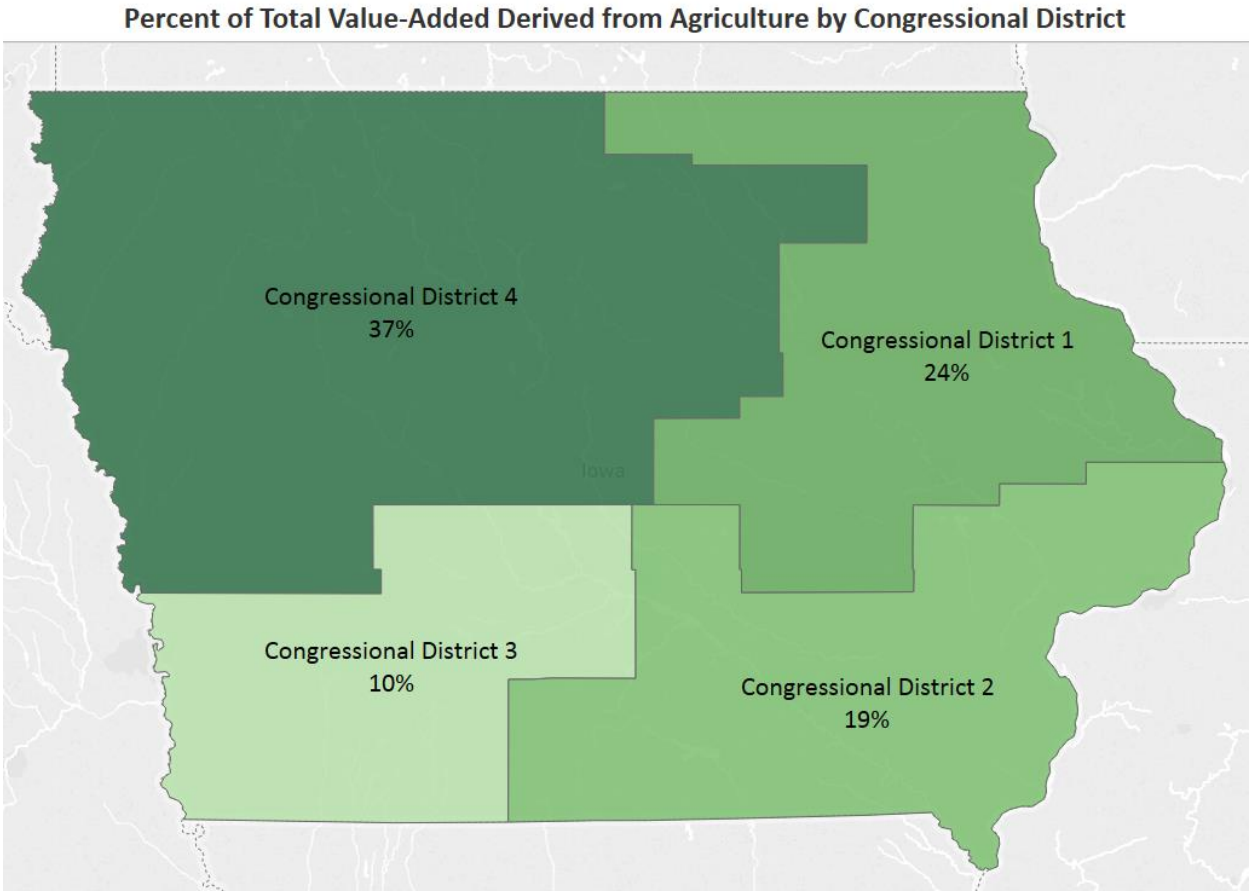

Figure 19, Percent of Value-Added Derived from Total Ag by Congressional District

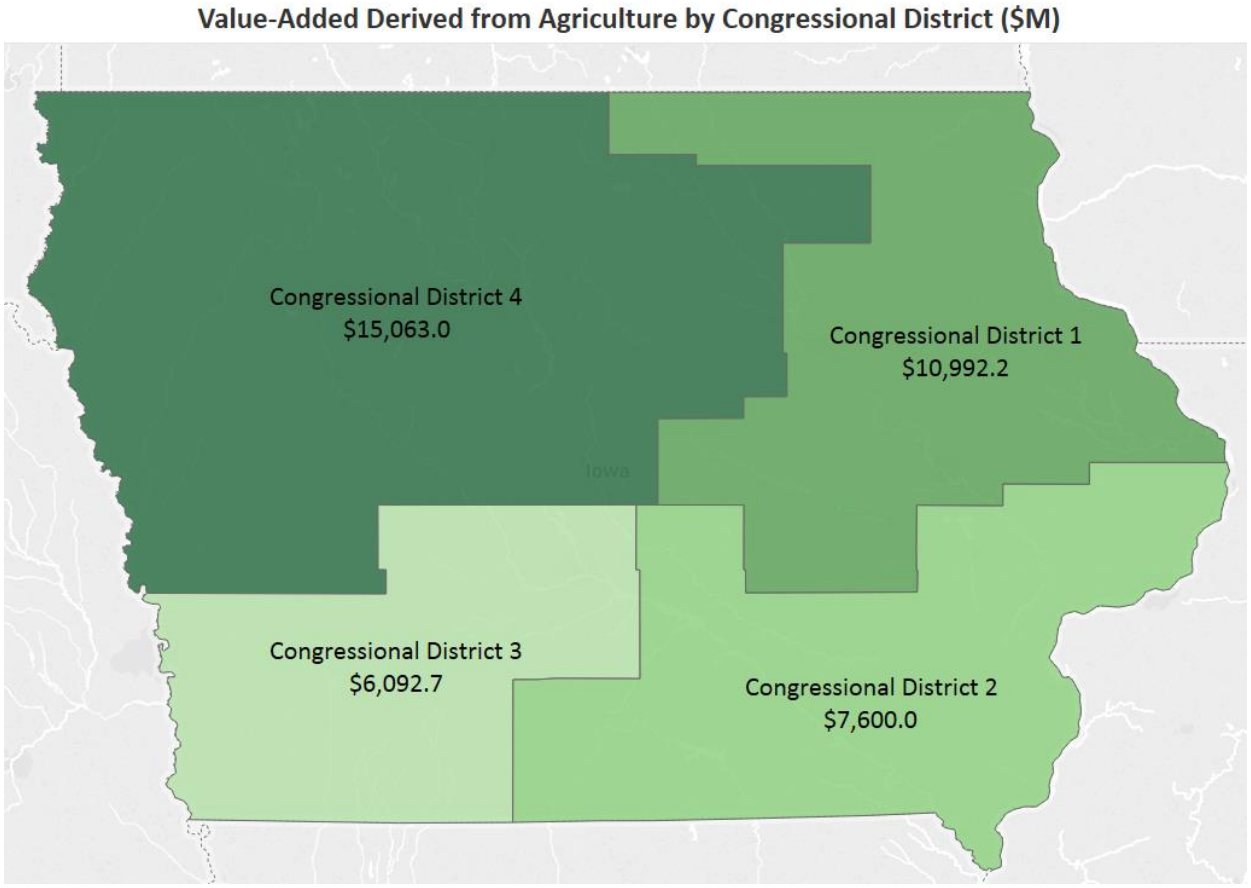

Figure 20, Value-Added Derived from Total Ag by Congressional District ($M)

Jobs

Each of the four Iowa congressional districts derive at least 10% of their jobs from the agriculture industry, with the 4th Congressional District relying on agriculture and related industries for nearly a third of its jobs (see Figure 21).

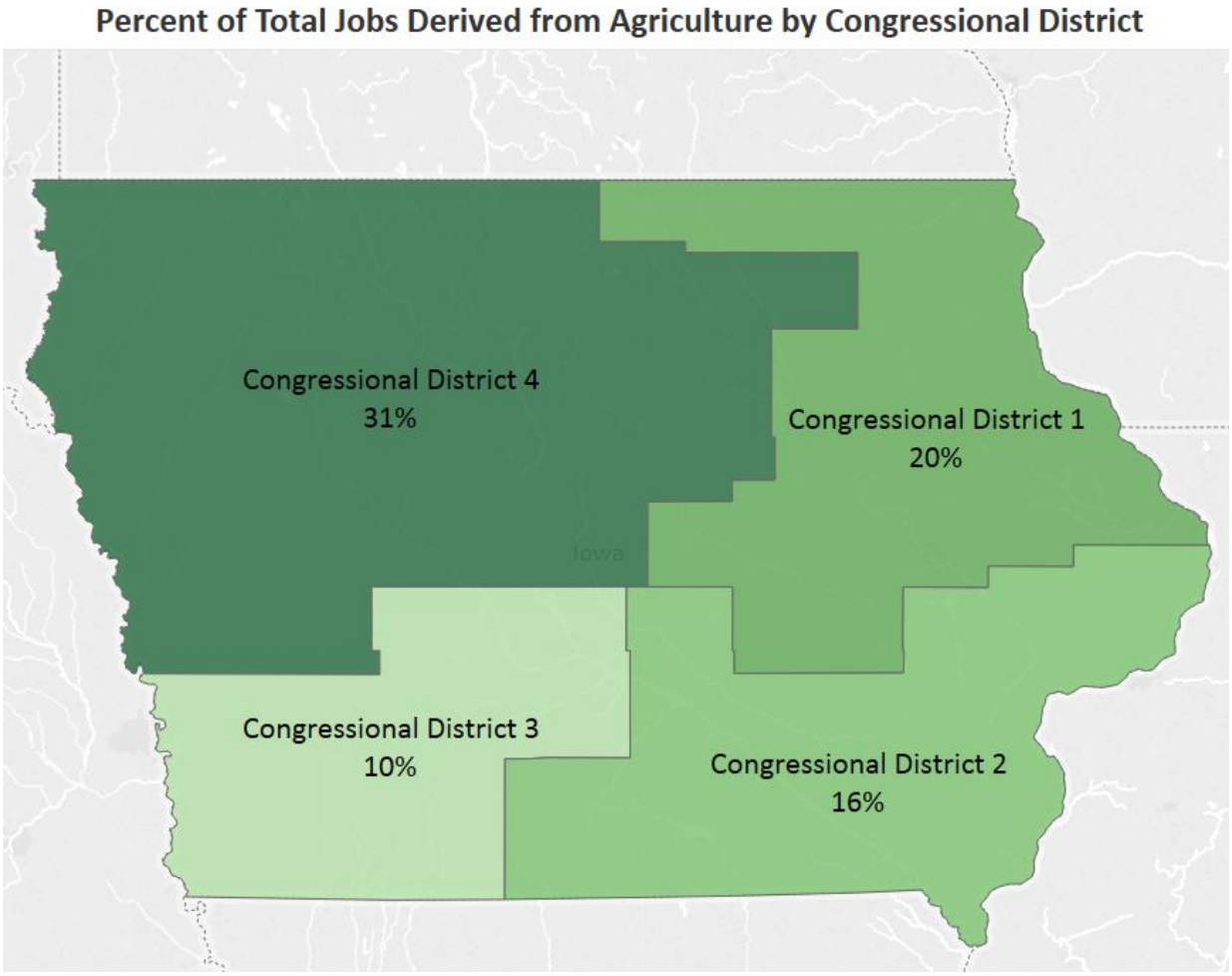

Figure 21, Percent of Total Jobs Derived from Agriculture by Congressional District

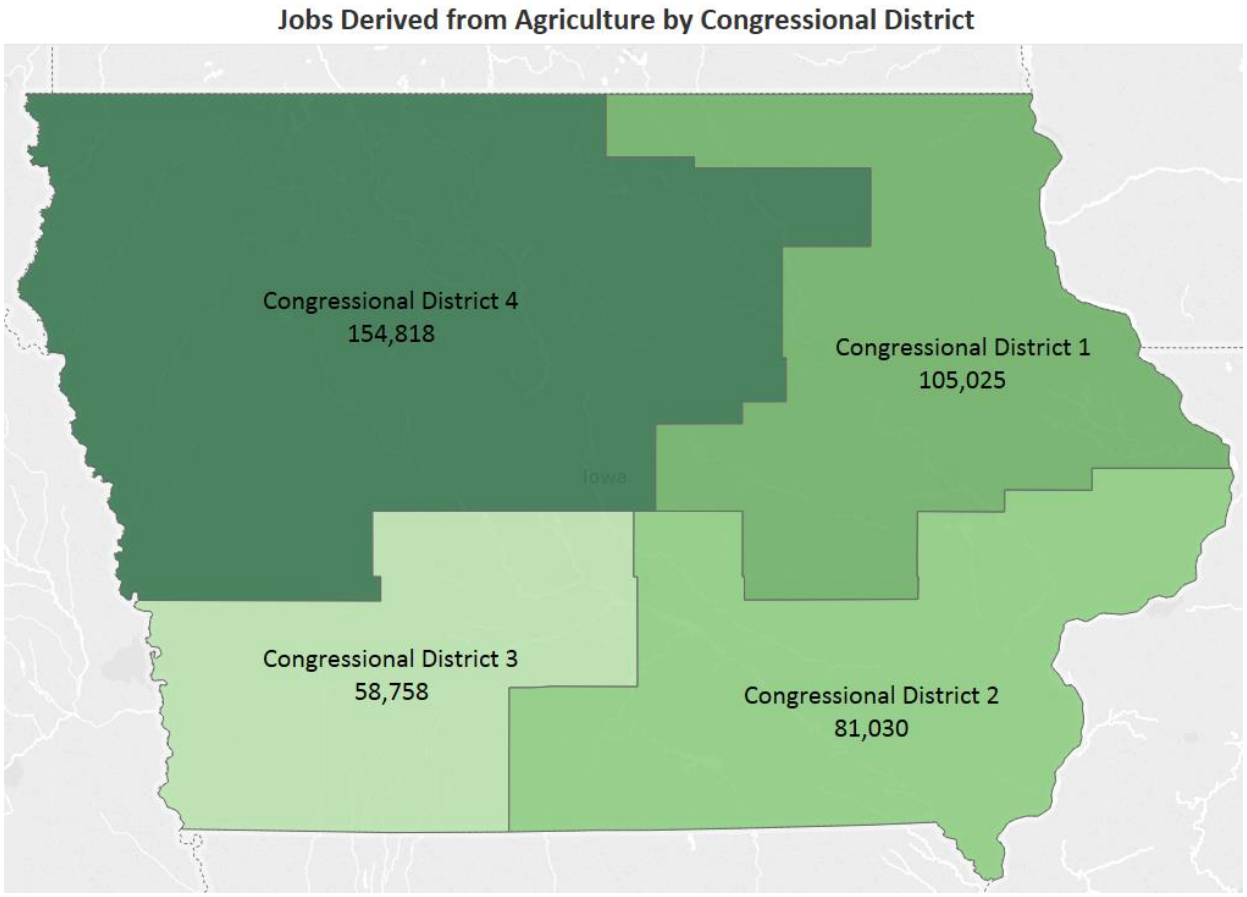

Figure 22, Jobs Derived from Agriculture by Congressional District

Iowa Agriculture: Looking Ahead

Cattle Processing

Iowa is in the top five states for cattle on feed inventory. With limited cattle slaughtering and processing facilities in the state, travel distances are high and much of this portion of the value-chain leaves the State of Iowa. As cattle inventories in Iowa continue to grow, the addition of further processing is a potential way to capture more economic activity from the cattle industry.

Aquaculture

Aquaculture is an emerging industry in the State of Iowa. The developing use of recirculating aquaculture systems (RAS) eliminate the need to be near coastal or inland waters. Research in food fish and shrimp nutrition are driving the replacement of expensive fish meal and fish oil to agricultural products like soybean meal and soybean oil. Aquaculture producers see the value of bringing production to the source of alternative feed ingredients. As the aquaculture industry grows, there will be demand for local processing and further value-adding capabilities. Additionally, the development of a "fresh fish" marketing alternatives for aquaculture products could stimulate investment in more overnight handling and shipping infrastructure.

Trends in Consumer Preferences

Organic, Cage-Free, and Non-GMO are just some of the more frequently mentioned terms in changing consumer food preferences. The challenge faced by Iowa's farmers can be captured in two words: communication and adaptation. On one hand it is important that the consumer hears and understands the farmers side of the food chain. At the same time, producers need to be ready to adapt to a changing market.

Iowa could be well-situated geographically to be at the center of more production of niche, but growing, segments of consumer-led products. But for this to occur, there will likely need to be development of marketing and distribution channels to supply those developing markets. And, there will likely need to be some modifications of existing production chains to accommodate these niche market preferences. This may include more non-GMO and/or organic feed production, segregated feedstuff processing and handling and, in some ways, a mind-set change by producers who are willing to move out of low-cost, high-volume commodity production and embrace differentiated production and marketing.

Addressing Resistance to Livestock Production

A challenge for the Iowa livestock industry that is likely to continue, if not get stronger, is local resistance to livestock production expansion. Siting decisions may get more complex and pressures to install more structures or mechanisms to control water runoff, odor, and other characteristics of livestock production are all apt to gain more support, not only from urban

dwellers, but also from rural, non-farm residents. Expansion of livestock production is likely to need more access to site planning and site selection analytic data. This may include interactive mappings and better access to libraries of federal, state and local regulations that can be overlaid onto siting maps.

Impacts of Trade

Livestock production in Iowa has been a main contributor to increased supplies of exportable products, especially for pork and beef as well as for feedstuffs like corn, soybeans and DDGs. Trade disruptions for these basic items could be a force that puts more focus on value-adding to our products within Iowa. This could especially play out if animal diseases such as African Swine Fever continue to spread across China, southeast Asia and eastern Europe. This may present opportunities for Iowa to produce, process and export more pork and poultry products rather than basic feedstuffs like corn and soybeans.

Uncertainty breeds opportunity. With increased uncertainty facing Iowa agriculture, there are more opportunities if Iowa's farmers are prepared to meet the challenges.

Appendix A, IMPLAN Aggregation Scheme

IMPLAN Code	IMPLAN Description	Aggregation Description
1	Oilseed farming	Oilseeds
2	Grain farming	Grains
3	Vegetable and melon farming	Other Crop Production
4	Fruit farming	Other Crop Production
5	Tree nut farming	Other Crop Production
6	Greenhouse, nursery, and floriculture production	Other Crop Production
7	Tobacco farming	Other Crop Production
8	Cotton farming	Other Crop Production
9	Sugarcane and sugar beet farming	Other Crop Production
10	All other crop farming	Other Crop Production
15	Forestry, forest products, and timber tract production	Other Crop Production
16	Commercial logging	Other Crop Production
11	Beef cattle ranching and farming, including feedlots and dual-purpose ranching and farming	Cattle
12	Dairy cattle and milk production	Dairy
13	Poultry and egg production	Poultry
14	Animal production, except cattle and poultry and eggs	Hogs and Other Livestock
17	Commercial fishing	Hogs and Other Livestock
18	Commercial hunting and trapping	Hogs and Other Livestock
19	Support activities for agriculture and forestry	Ag Support
459	Veterinary services	Ag Support
33	Potash, soda, and borate mineral mining	Ag Chemical and Fertilizer
34	Phosphate rock mining	Ag Chemical and Fertilizer
35	Other chemical and fertilizer mineral mining	Ag Chemical and Fertilizer
165	Other basic organic chemical manufacturing	Ag Chemical and Fertilizer
169	Nitrogenous fertilizer manufacturing	Ag Chemical and Fertilizer
170	Phosphatic fertilizer manufacturing	Ag Chemical and Fertilizer
171	Fertilizer mixing	Ag Chemical and Fertilizer
172	Pesticide and other agricultural chemical manufacturing	Ag Chemical and Fertilizer
65	Dog and cat food manufacturing	Animal and Pet Foods
66	Other animal food manufacturing	Animal and Pet Foods
262	Farm machinery and equipment manufacturing	Farm Machinery
72	Fats and oils refining and blending	Other Food Processing
73	Breakfast cereal manufacturing	Other Food Processing
76	Nonchocolate confectionery manufacturing	Other Food Processing
77	Chocolate and confectionery manufacturing from cacao beans	Other Food Processing
78	Confectionery manufacturing from purchased chocolate	Other Food Processing

79	Frozen fruits, juices and vegetables manufacturing	Other Food Processing
80	Frozen specialties manufacturing	Other Food Processing
83	Dehydrated food products manufacturing	Other Food Processing
94	Bread and bakery product, except frozen, manufacturing	Other Food Processing
95	Frozen cakes and other pastries manufacturing	Other Food Processing
96	Cookie and cracker manufacturing	Other Food Processing
97	Dry pasta, mixes, and dough manufacturing	Other Food Processing
98	Tortilla manufacturing	Other Food Processing
99	Roasted nuts and peanut butter manufacturing	Other Food Processing
100	Other snack food manufacturing	Other Food Processing
101	Coffee and tea manufacturing	Other Food Processing
102	Flavoring syrup and concentrate manufacturing	Other Food Processing
103	Mayonnaise, dressing, and sauce manufacturing	Other Food Processing
104	Spice and extract manufacturing	Other Food Processing
105	All other food manufacturing	Other Food Processing
106	Bottled and canned soft drinks & water	Other Food Processing
107	Manufactured ice	Other Food Processing
108	Breweries	Other Food Processing
109	Wineries	Other Food Processing
110	Distilleries	Other Food Processing
111	Tobacco product manufacturing	Other Food Processing
67	Flour milling	Primary Food Processing - Crops
68	Rice milling	Primary Food Processing - Crops
69	Malt manufacturing	Primary Food Processing - Crops
70	Wet corn milling	Primary Food Processing - Crops
71	Soybean and other oilseed processing	Primary Food Processing - Crops
74	Beet sugar manufacturing	Primary Food Processing - Crops
75	Sugar cane mills and refining	Primary Food Processing - Crops
81	Canned fruits and vegetables manufacturing	Primary Food Processing - Crops
82	Canned specialties	Primary Food Processing - Crops
84	Fluid milk manufacturing	Primary Food Processing - Dairy
85	Creamery butter manufacturing	Primary Food Processing - Dairy
86	Cheese manufacturing	Primary Food Processing - Dairy
87	Dry, condensed, and evaporated dairy product manufacturing	Primary Food Processing - Dairy
88	Ice cream and frozen dessert manufacturing	Primary Food Processing - Dairy
89	Animal, except poultry, slaughtering	Primary Food Processing - Meat
90	Meat processed from carcasses	Primary Food Processing - Meat
91	Rendering and meat byproduct processing	Primary Food Processing - Meat
92	Poultry processing	Primary Food Processing - Meat
93	Seafood product preparation and packaging	Primary Food Processing - Meat

Appendix B, Detailed County Level Maps

Value-Added

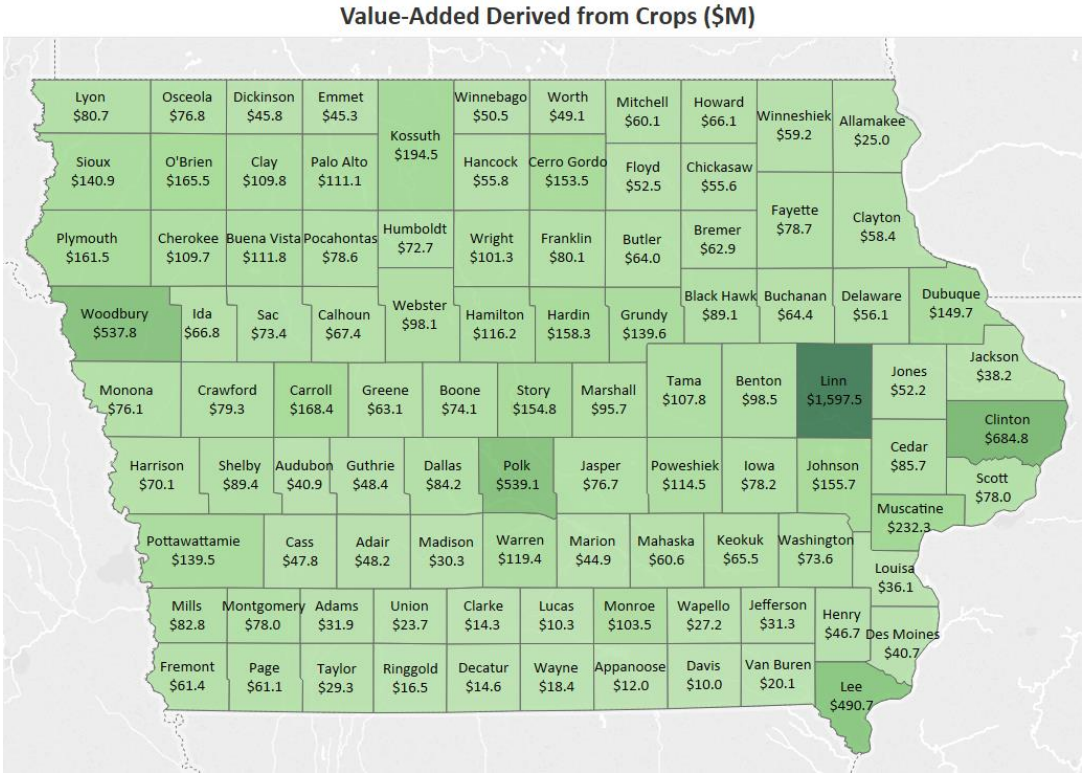

Figure 23, Value-Added Derived from Crops ($M)

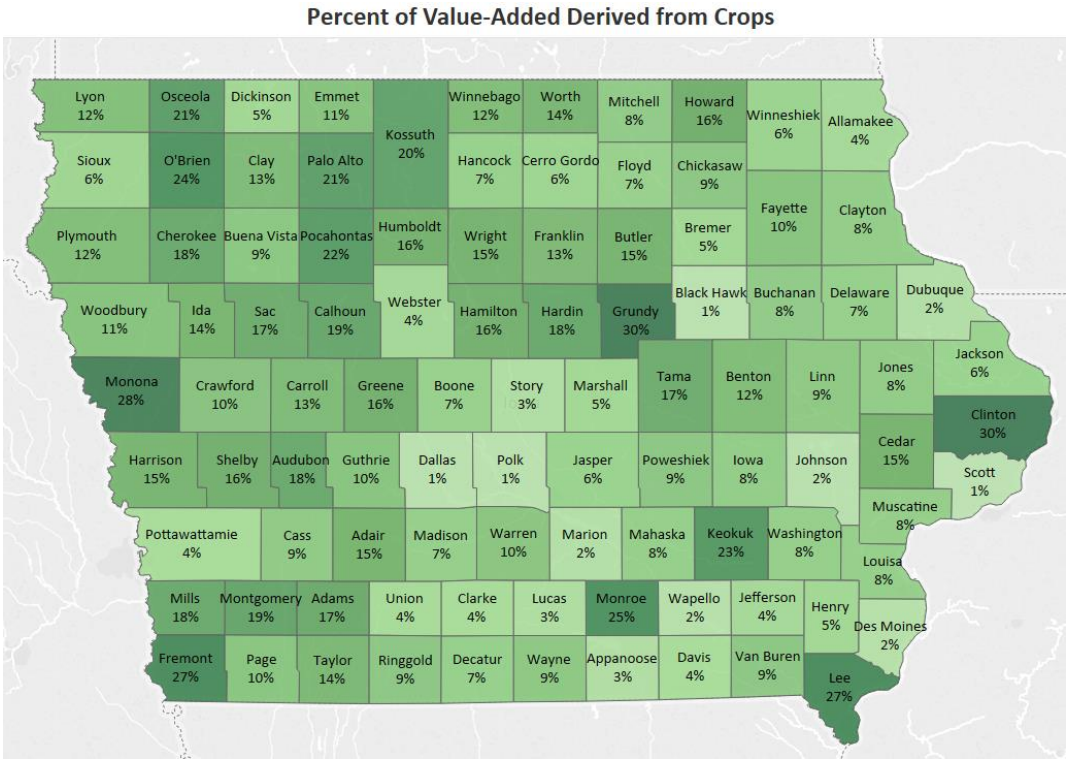

Figure 24, Percent of Value-Added Derived from Crops

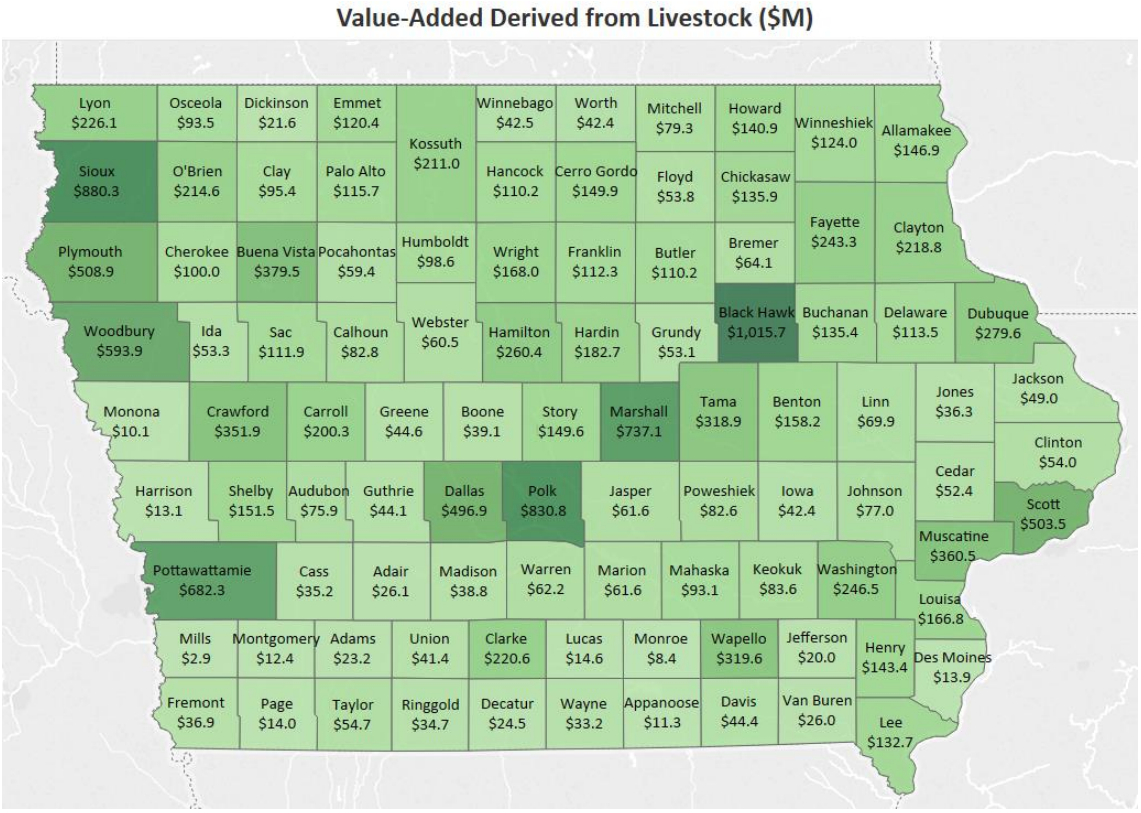

Figure 25, Value-Added Derived from Livestock ($M)

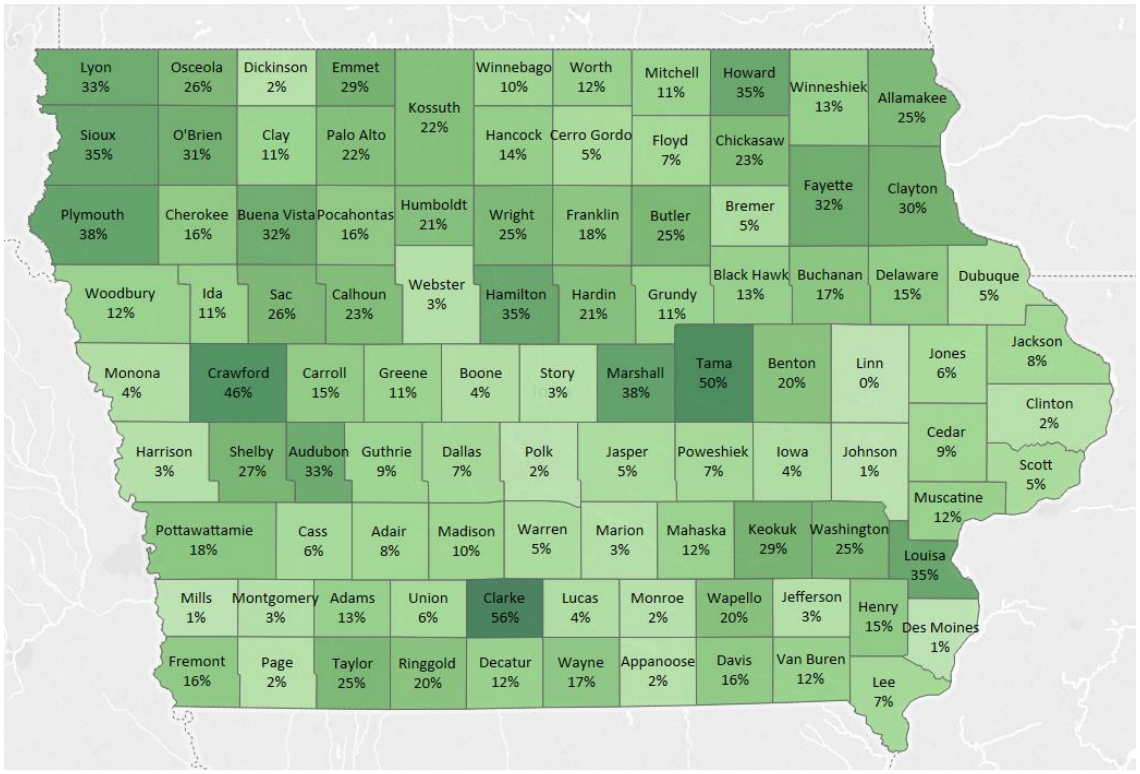

Figure 26, Percent of Value-Added Derived from Livestock

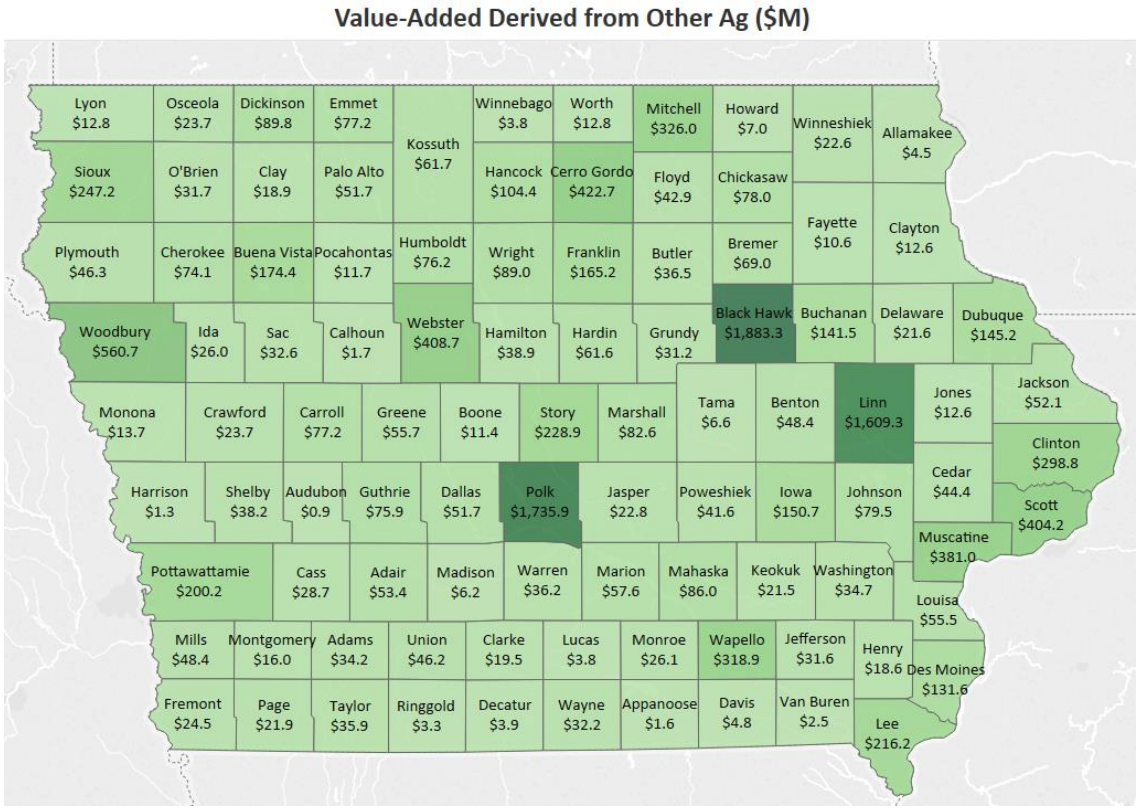

Figure 27, Value-Added Derived from Other Ag ($M)

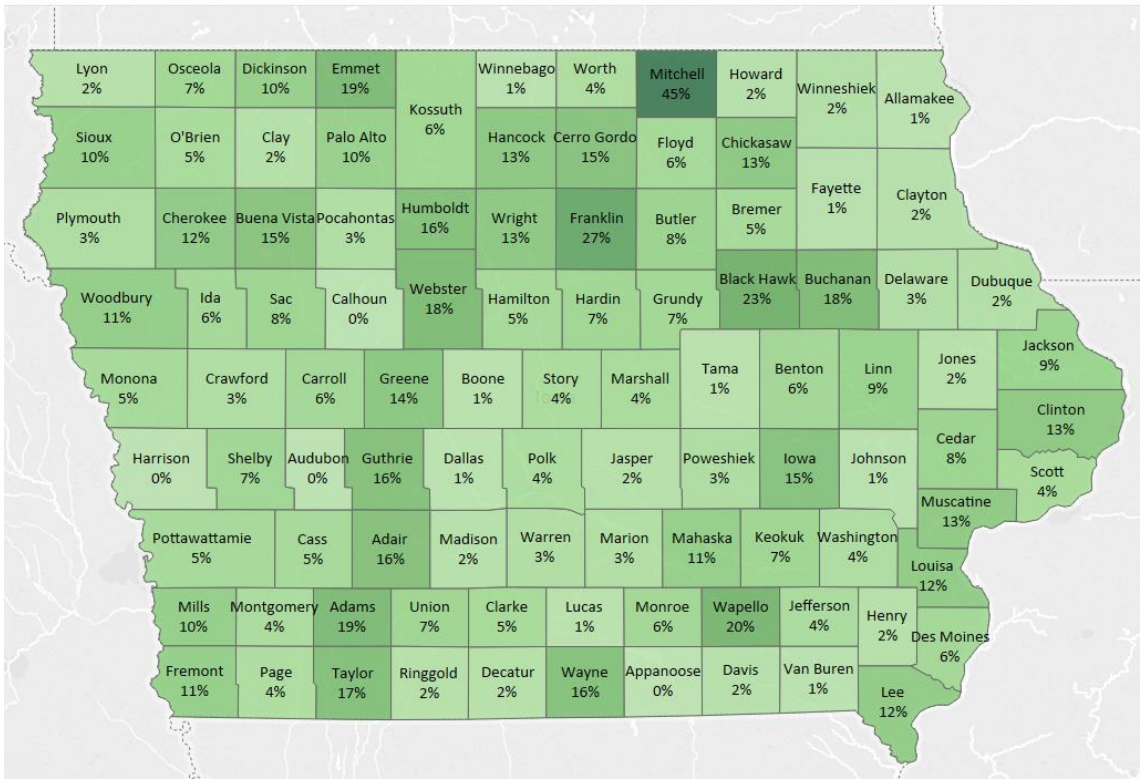

Figure 28, Percent of Value-Added Derived from Other Ag

Jobs

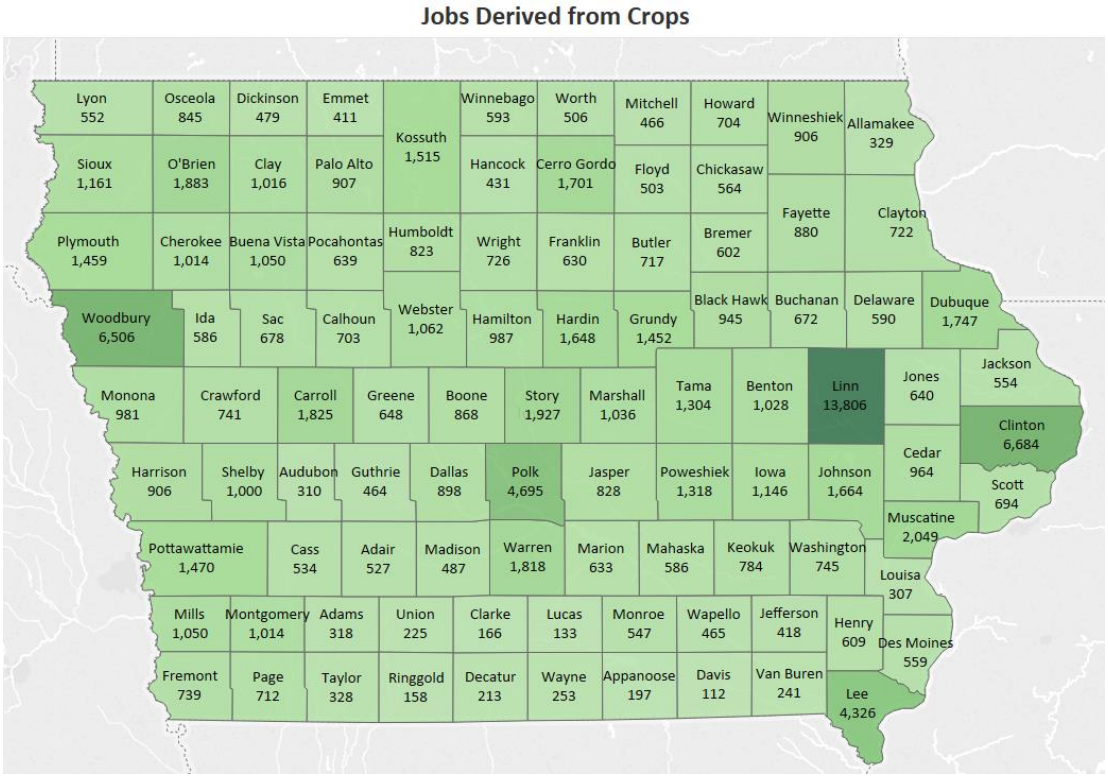

Figure 29, Jobs Derived from Crops

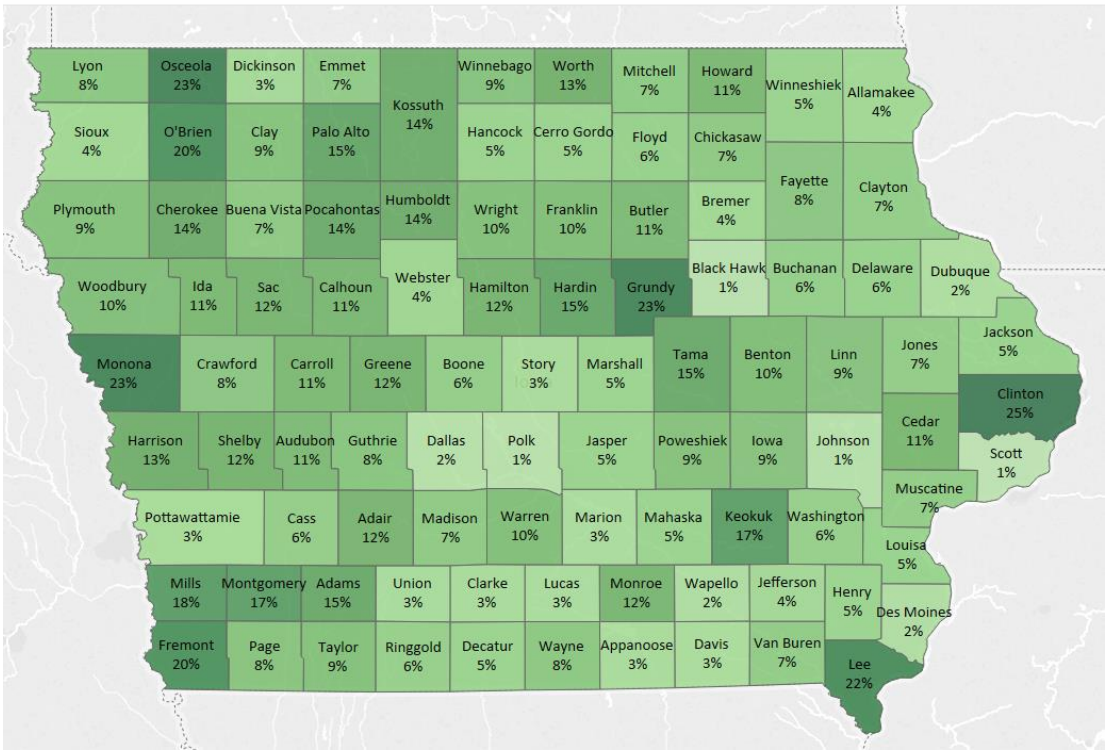

Figure 30, Percent of Jobs Derived from Crops

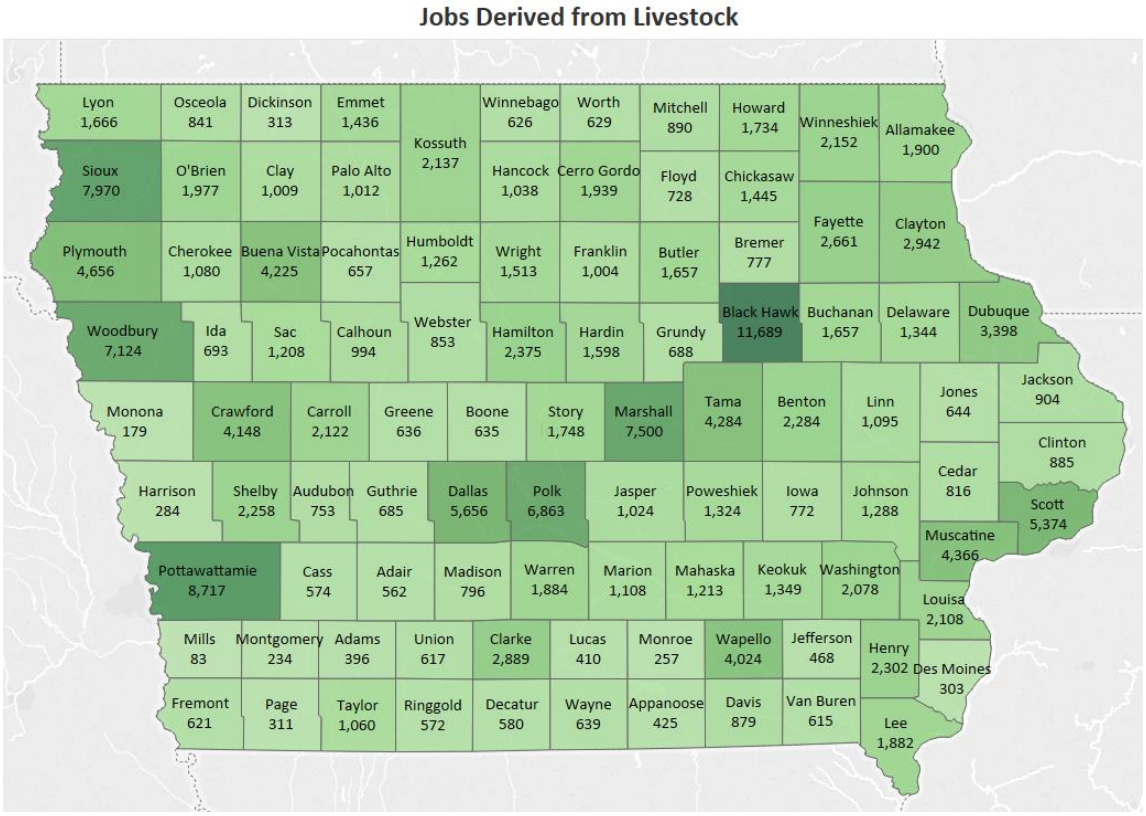

Figure 31, Jobs Derived from Livestock

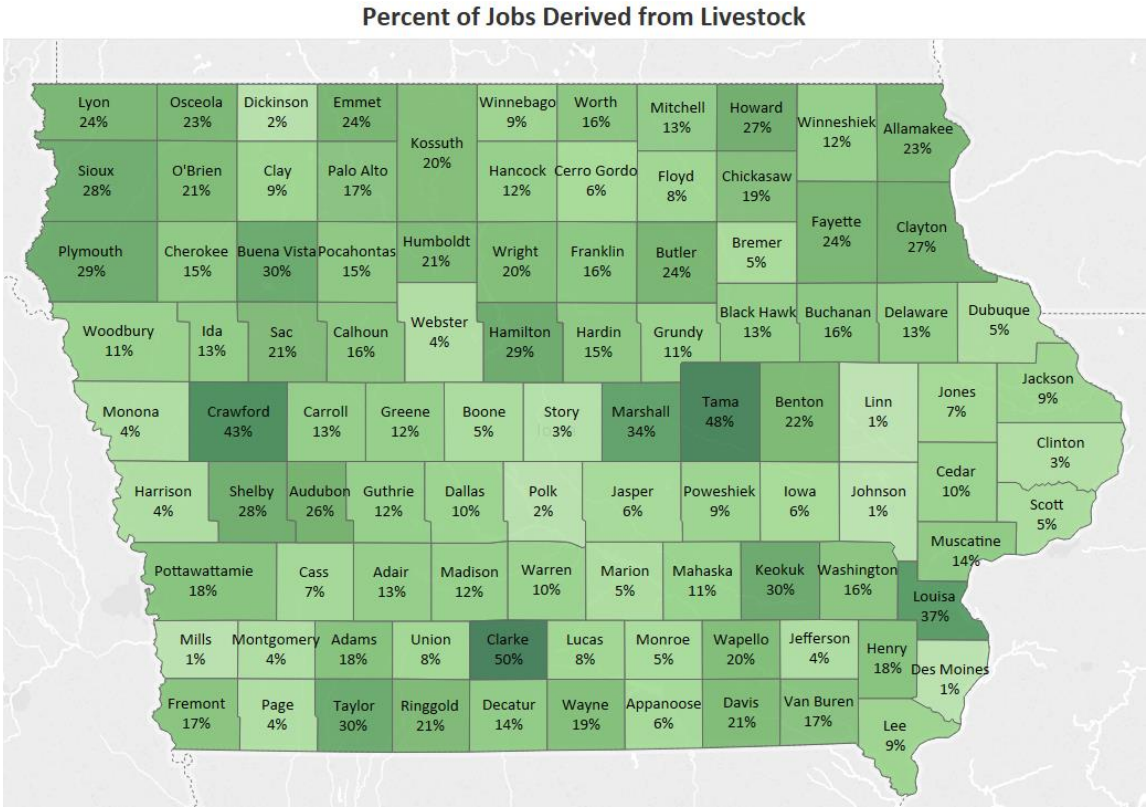

Figure 32, Percent of Jobs Derived from Livestock

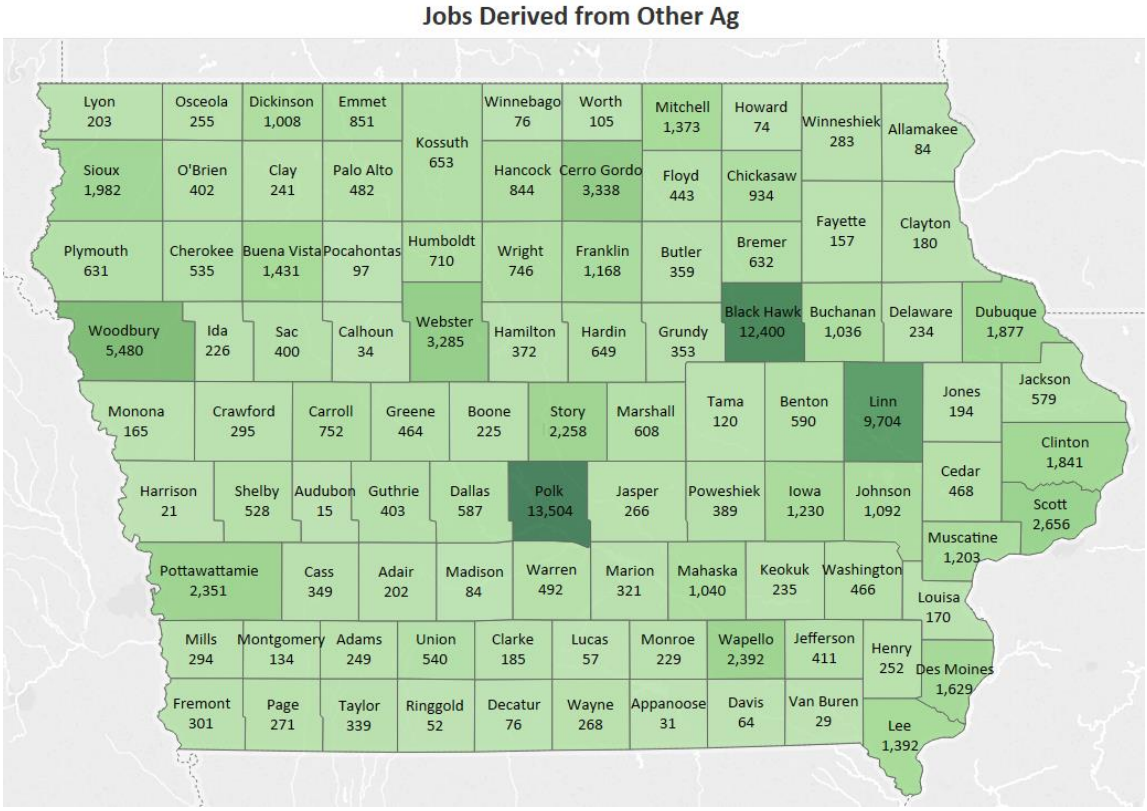

Figure 33, Jobs Derived from Other Ag

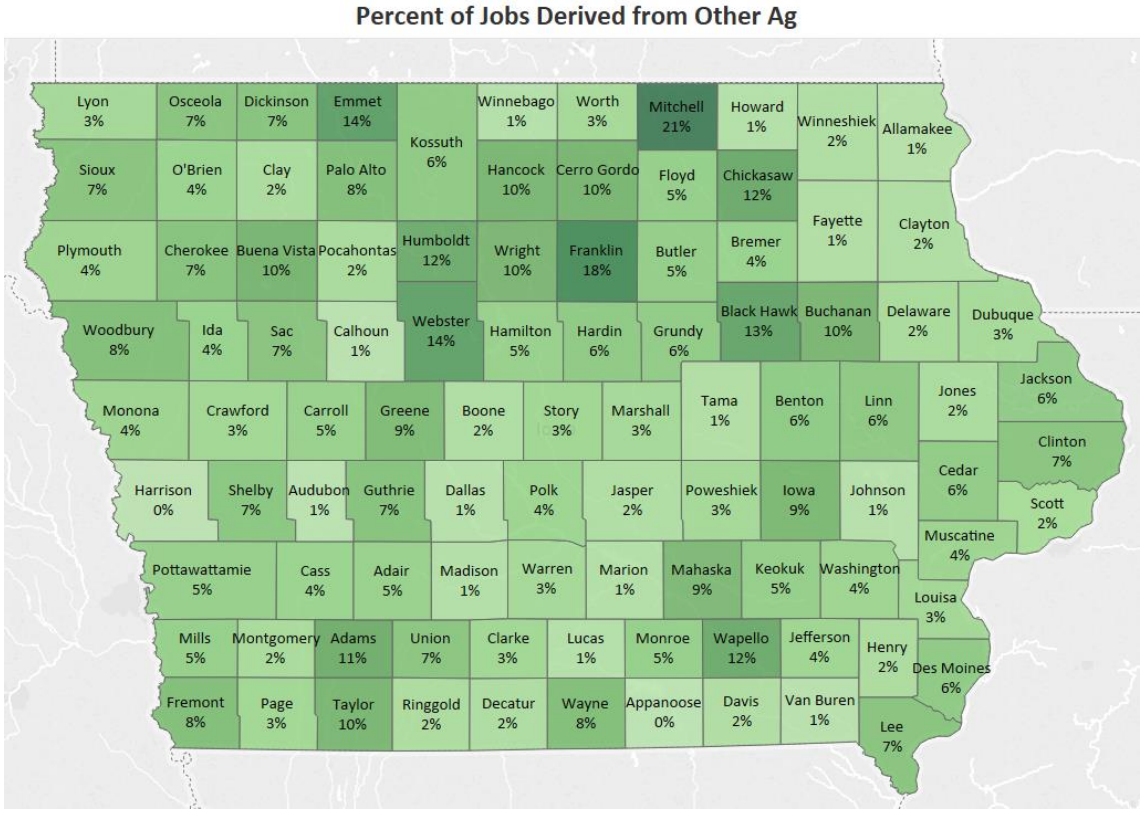

Figure 34, Percent of Jobs Derived from Other Ag