

2016 Iowa Animal Agriculture Economic Contribution Study

Prepared for:

**Coalition to Protect
the Rural Economy**

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Executive Summary

Animal agriculture in Iowa has long been an important contributor to the state's economy. Since the State of Iowa is largely dependent on agriculture, the removal or diminishment of livestock farming (a large portion of Iowa agriculture) would have a negative impact on a wide variety of industries across the state. As shown in this analysis, animal agriculture is a critical component to the economic well-being of the state.

This study is based on a combination of datasets from the 2012 Census of Agriculture and the IMPLAN modeling system. This study looks at the economic contribution derived from the production of hogs, beef, egg-laying hens, and turkeys through the slaughtering, processing, and rendering of these species. These industries, along with veterinary services, are referred to throughout this report as "animal agriculture". Given the current strength of Iowa's animal agriculture and access to necessary resources such as land, labor, and feed, it is reasonable to assume that livestock farming in Iowa will continue to develop and remain a key part of Iowa's economy.

Key Findings

In 2013, animal agriculture in Iowa contributed:

- **\$38,000,000,000** in output
- **160,258 jobs**
- **\$15,900,000,000** in value added
- **\$9,500,000,000** in labor income
- **\$1,200,000,000** in state and local taxes
- **\$1,900,000,000** in federal taxes

From a direct output perspective, Iowa animal agriculture represents **7.8%** of total Output, **4.5%** of total Jobs, **6.3%** of total Value-Added, and **6.2%** of total Labor Income.

In addition to conducting the analysis at the state level for all of animal agriculture combined, economic activity derived from each of hogs, cattle, egg-laying hens and turkeys was estimated and presented by species. Highlights of this additional break out of economic activity are as follows:

Output

- Hogs and related economic activity contributed **\$26,700,000,000** in output
- Cattle and related economic activity added **\$6,900,000,000** in output
- Turkey and related economic activity contributed **\$1,600,000,000** in output
- Egg-laying hens and related economic activity contributed **\$2,300,000,000** in output
- Veterinary services also added about **\$589,900,000** in output

Jobs

- Hogs and related economic activity contributed **107,775 jobs**
- Cattle and related economic activity added **34,602 jobs**
- Turkey and related economic activity contributed **5,897 jobs**
- Egg-laying hens and related economic activity contributed **4,921 jobs**
- Veterinary services also added about **7,064 jobs**

Iowa Animal Agriculture Background

Iowa's animal agriculture production is widespread and diverse. From the actual production of livestock and eggs to the slaughtering, processing, and rendering of these animals, and a myriad of other value-added activities, Iowa's animal agriculture has been and continues to be an integral part of the Iowa economy. While driving the countryside, numerous livestock farms and meat processors are certainly a reminder of the magnitude of animal agriculture. Oftentimes, much can be learned and communicated from conducting an in-depth quantification of the extent of the animal agriculture's role in the economy.

This study relies heavily on data from the IMPLAN modeling system and the United States Department of Agriculture (USDA) 2012 Census of Agriculture. This 2016 Iowa Animal Agriculture Economic Contribution Study is patterned in principle after similar Decision Innovation Solutions studies including all agriculture industries which have completed for Iowa in 2009 and 2014, as well as South Dakota in 2014 and Illinois in 2015. The intent of the study has been to develop an understanding of the current economic importance of animal agriculture relative to the state as a whole. The following subsections provide important context for the state of livestock and related economic activity in Iowa.

Iowa Agriculture

According to the 2012 Census of Agriculture, Iowa is ranked the #1 state in the nation for¹:

- Hogs and pigs inventory
- Pullets for laying flock replacement
- Layers (laying hens) inventory
- Grains and oilseeds value of sales
- Hogs and pigs value of sales
- Corn acres
- Soybean acres

In addition to the rankings above, Iowa was also ranked in the top ten states for:

- Total value of agriculture products sold (#2)
- Market value of crops sold (#2)
- Market value of livestock sold (#2)
- Cattle and calves value of sales (#4)
- Sheep, goats, wool & milk value of sales (#6)
- Cattle and calves inventory (#6)
- Corn for silage acres (#7)
- Oats for grain acres (#7)
- Turkey inventory (#9)

¹<http://www.agcensus.usda.gov/>

Iowa's various agriculture industries work hand in hand, and their unique ability to produce a diverse mix of products help keep animal agriculture strong. According to 2015 data from USDA/National Agricultural Statistics Service (NASS), the State of Iowa is currently home to the following livestock and poultry²:

Table 1, Iowa Livestock and Poultry Inventories

Cattle, Including Calves - Inventory	3,900,000	Goats, Milk - Inventory	31,000
Cattle, Cows, Milk - Inventory	210,000	Sheep, Including Lambs - Inventory	175,000
Cattle, Cows, Beef - Inventory	920,000	Hogs - Inventory	21,300,000
Cattle, On Feed - Inventory	1,220,000	Turkeys - Production, Measured in Head	10,500,000
Goats, Meat & Other - Inventory	25,500		

Primary agricultural commodities in Iowa include corn, soybeans, hogs, cattle, eggs and turkeys. Because of Iowa's large share of the nation's totals in many categories, what happens in Iowa from year to year can and often does have implications for the nation as a whole. Table 2 shows that livestock, poultry and their products accounted for almost 44% percent of Iowa's farm marketing receipts in 2012. Although this number is down slightly from the 49% in 2007 (largely due to high crop prices in 2012), the average over the past four Ag Census reports has been 48%, which shows production livestock's ability to consistently be a strong contributor to the economy.

Table 2, Iowa Farm Sales by Source

	<u>2012</u>	<u>% of 2012 Total</u>	<u>2007</u>	<u>% of 2007 Total</u>	<u>2002</u>	<u>% of 2002 Total</u>	<u>1997</u>	<u>% of 1997 Total</u>
Total Sales (\$1000)	\$30,821,532		\$20,418,096		\$12,273,634		\$12,162,165	
Average per farm	\$347,728		\$219,890		\$135,388		\$125,766	
Grains, Oilseeds, Dry Beans and Dry Peas (\$1000)	\$17,146,679	55.6%	\$10,123,033	49.6%	\$5,858,528	47.7%	\$6,011,171	49.4%
Livestock, Poultry and their products (\$1000)	\$13,454,718	43.7%	\$10,074,511	49.3%	\$6,202,362	50.5%	\$5,780,489	47.5%
Poultry and Eggs (\$1000)	\$1,291,808	4.2%	\$872,263	4.3%	\$511,949	4.2%	\$414,587	3.4%
Cattle and Calves (\$1000)	\$4,504,373	14.6%	\$3,606,633	17.7%	\$2,119,935	17.3%	\$1,886,416	15.5%
Milk and Other Dairy Products from cows (\$1000)	\$799,467	2.6%	\$689,680	3.4%	\$442,431	3.6%	\$407,897	3.4%
Hogs and Pigs (\$1000)	\$6,767,424	22.0%	\$4,827,224	23.6%	\$3,078,455	25.1%	\$3,012,764	24.8%
Sheep, goats, and their products (\$1000)	\$43,020	0.1%	\$40,199	0.2%	\$23,366	0.2%		
Other Animals & their products (\$1000)	\$26,186	0.1%	\$22,324	0.1%	\$10,276	0.1%		

²http://www.nass.usda.gov/Quick_Stats/Ag_Overview/stateOverview.php?state=IOWA

As shown in Figure 1, in terms of dollars, hog sales are up 125% since 1997 (source: 2012 U.S. Census of Agriculture). Additionally, cattle sales are up 139% and poultry sales are up 211%.

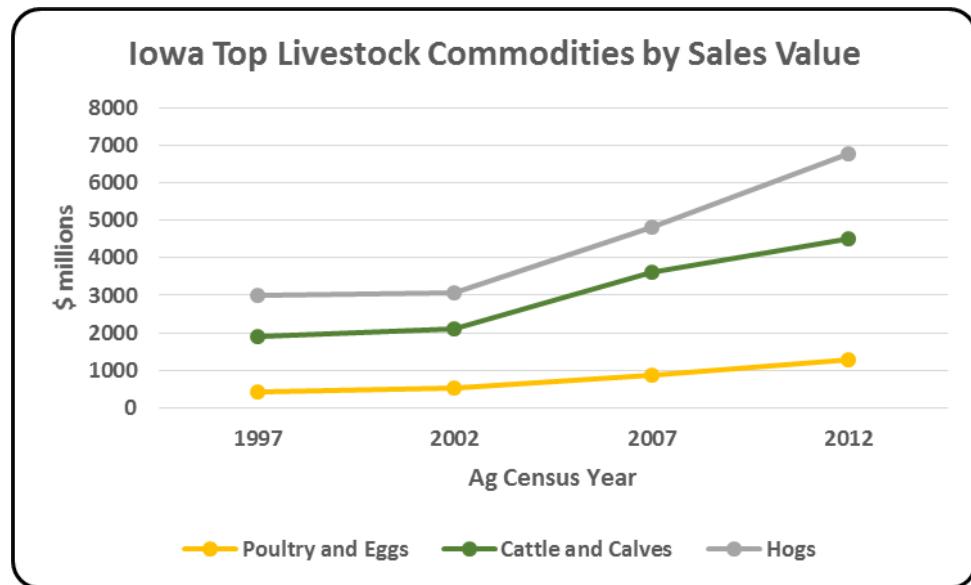


Figure 1, Iowa Top Livestock Commodities by Sales Value

According to the 2012 Census of Agriculture³, there were 88,637 farms in Iowa in 2012 which was a 4.5% decrease from 92,856 farms in 2007. Figure 2 shows the number of farms with cattle and calves by county from the 2012 Census of Agriculture. Dubuque County has the most cattle farms with 748.

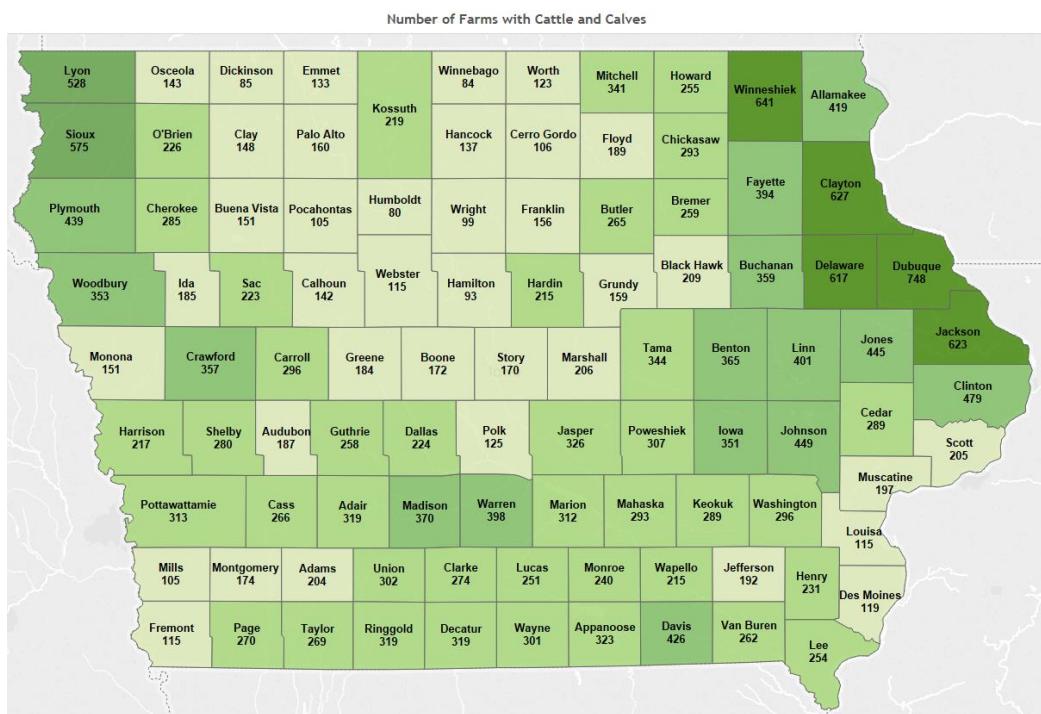


Figure 2, Number of Farms with Cattle and Calves (Iowa)

³ <http://www.agcensus.usda.gov/>

Figure 3 shows the number of farms with hogs by county according to the 2012 Census of Agriculture. Sioux County leads the way with 413 farms.

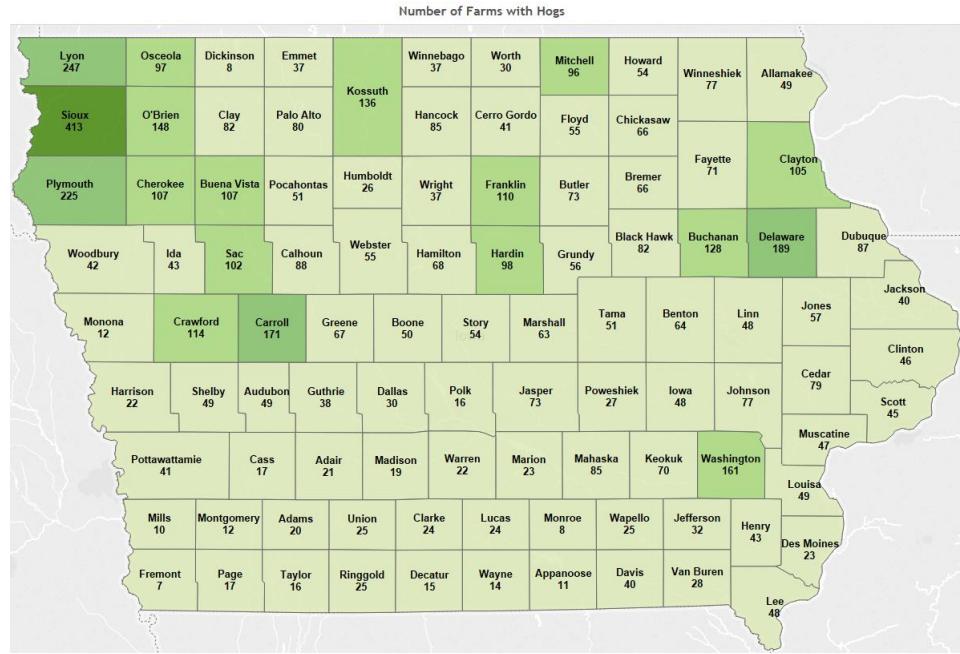


Figure 3, Number of Farms with Hogs (Iowa)

Iowa Animal Agriculture Related Industries

In addition to housing livestock and poultry in Iowa, there are also slaughtering, processing, and rendering businesses that add jobs and economic activity to the state. These businesses complement and enhance the work of local farmers and play an important role in the value chain of animal agriculture. Figure 4 and Figure 5 show locations of various types of slaughtering, processing, and rendering businesses and where they are located across the state.

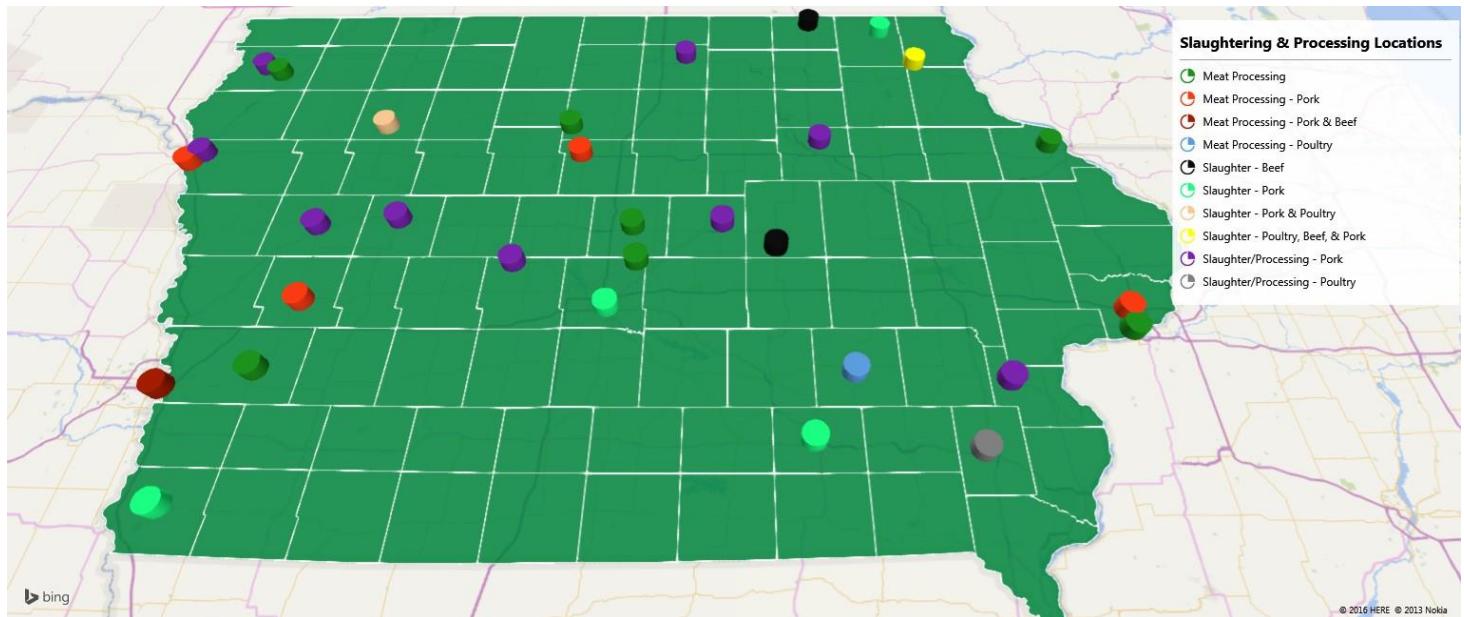


Figure 4, Slaughtering & Processing Locations Map



Figure 5, Rendering Locations Map

Methodology

The 2016 Iowa Animal Agriculture Economic Contribution Study was completed with a combination of the 2013 Iowa IMPLAN dataset and data from the USDA 2012 Census of Agriculture. The IMPLAN modeling system and Microsoft Excel were used for calculating and tabulating the results of this analysis. Results are presented using these common economic modeling terms:

- **Output**
 - The most broad measure of economic activity – sometimes referred to as “sales”
- **Employment (Jobs)**
 - A measure of job positions without regard to whether they are full-time equivalents
- **Value-Added**
 - A combination of Labor Income (defined below), Other Property Type Income, and Tax on Production and Imports
- **Labor Income**
 - The sum of Employee Compensation (work for hire) and Proprietor Income (self-employed) and is a *sub-component* of value-added.

Defining Animal Agriculture

There is usually considerable discussion regarding the blurred lines between production animal agriculture, processing, and retail, and how animal agriculture should be defined. Animal agriculture can be defined as: 1) including only farm-level livestock, poultry and egg 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 animal agriculture sector, there are few arguments that its inclusion should be limited to strictly the production of livestock, poultry and eggs. This is because in its most basic form, the slaughtering, meat processing, and rendering industries depend nearly completely upon economic activities that produce primary agricultural commodities (hogs, cattle, poultry, eggs, etc.), which takes place at the farm level. Veterinary services are also very tightly linked to production animal agriculture.

To move beyond the production and processing of animal 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 animal agriculture industry. For example, if one were to include grocery stores as a component of animal agriculture, what would be the appropriate method to separate animal products from other agricultural products? 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 animal 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, we have chosen to include production animal agriculture plus the first round of value added to the process. For example, in addition to the production of hogs, cattle, and poultry we have also included the industries that process them (i.e., production, slaughtering, processing, and rendering). We have also included veterinary services as part of animal agriculture.

Using the above rationale as a guide, the IMPLAN model was created and analyzed using the recommended methodology for a Multi-Industry Contribution Analysis⁴. The 8 IMPLAN sectors identified for this analysis to represent animal agriculture include:

- Beef cattle ranching and farming
- Poultry and egg production
- Animal production, except cattle and poultry and eggs⁵
- Animal, except poultry, slaughtering
- Meat processed from carcasses
- Rendering and meat byproduct processing
- Poultry processing
- Veterinary services

⁴http://www.implan.com/index.php?option=com_content&view=article&id=351&Itemid=1797

⁵ For Iowa, the vast majority of this industry would be represented by hogs.

Results

Results from this analysis have been summarized in two ways: 1) state animal agriculture totals and 2) by species (hogs, cattle, turkeys, and eggs). The following sections present these results in both ways.

State Animal Agriculture Results

Results for the state animal agriculture sector analysis yielded some interesting points worthy of mention. Animal agriculture and related economic activities are critical to Iowa and are linked to many other Iowa industries. This analysis provides for a detailed look at what specific portions of the animal agriculture industries contribute to the state level economy. Discussion regarding the contribution of animal agriculture in terms of Output, Jobs, Value-added and Labor Income follows.

Output (State)

“Total output” refers to the total value of all of the output (production or sales) of a study area and/or industry within a study area. This is a gross number that does not make deductions for the cost or origination of inputs that were used in the production process. Figure 6 illustrates the contribution of Iowa’s animal agriculture to Iowa. This figure illustrates the contribution both in terms of actual amounts and the relative share of animal agriculture.

As shown in Figure 6, Iowa’s animal agriculture and related economic activities significantly contribute to Iowa’s economy at about \$38.0 billion in output. Of this amount, 35 percent comes from animal slaughtering (excluding poultry), 26 percent from the other animal production (which consists mainly of hog production), and 16 percent from beef cattle ranching and farming.

Using data from the IMPLAN modeling system, total direct output generated by animal agriculture represents approximately 7.8% of the state total.

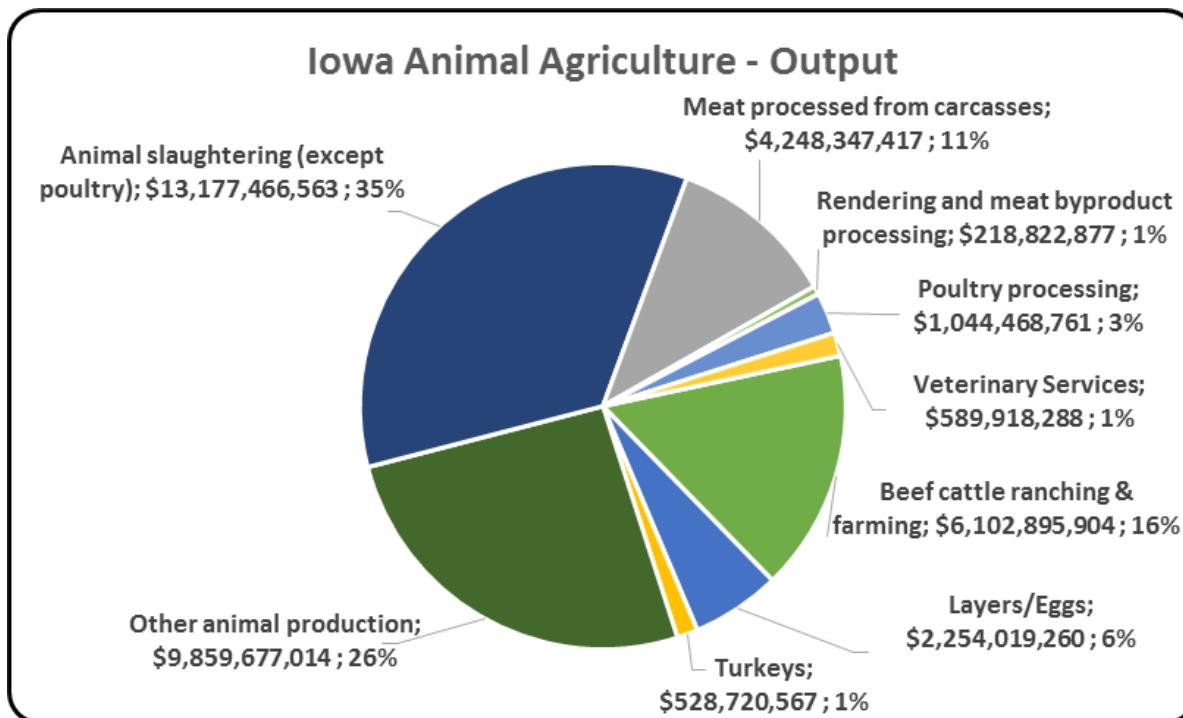


Figure 6, Iowa Animal Agriculture - Output

Jobs (State)

"Jobs"⁶ represents an estimate of the number of positions (jobs) currently filled in an area and/or industry. The estimates provided here originate with the IMPLAN input-output model database. "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. All of the jobs in an area are generally referred to as "Total jobs." Where "Jobs" are preceded by an industry name (such as "Poultry and egg production") the number is an estimate of the number of jobs filled within that industry in the area specified.

As shown in Figure 7, Iowa's animal agriculture and related economic activities significantly contribute to Iowa's total jobs. Animal agriculture in Iowa supports 160,258 jobs. Of this, 39 percent comes from other animal production (mainly hog production), 22 percent from animal slaughtering (except poultry), and 20 percent from beef cattle ranching and farming.

Using data from the IMPLAN modeling system, total direct jobs generated by animal agriculture represents approximately 4.5% of the state total.

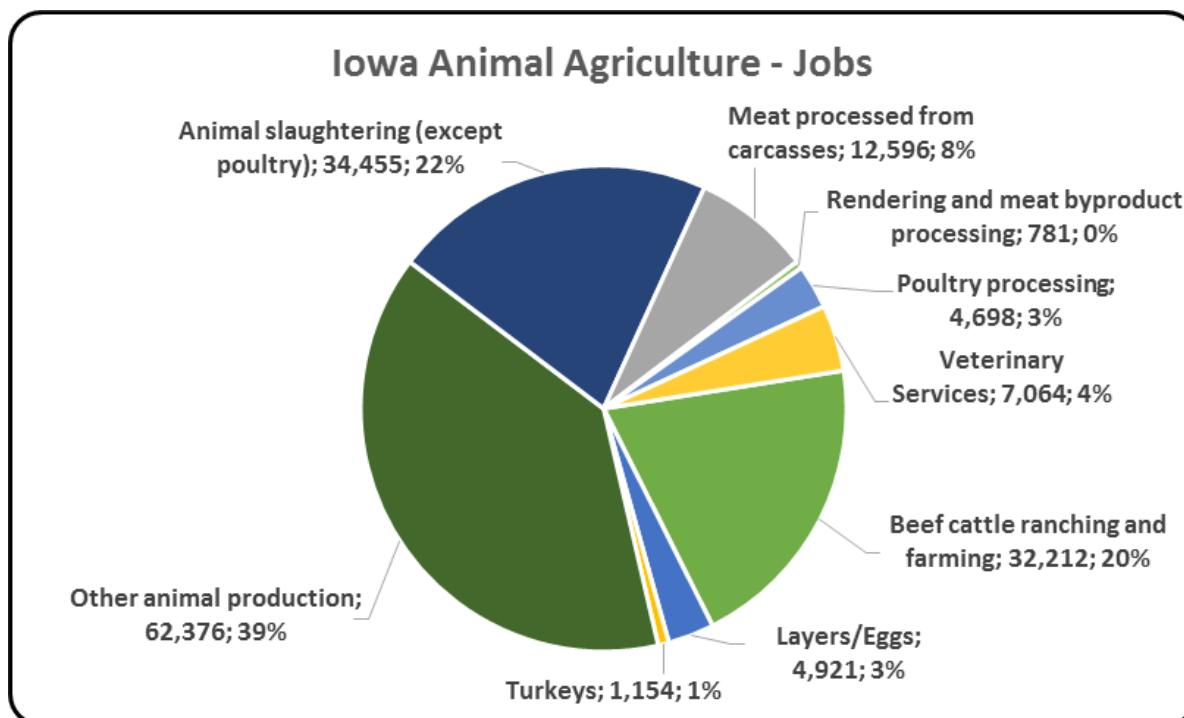


Figure 7, Iowa Animal Agriculture – Jobs

⁶Jobs do not refer to the number of people working or to full-time-equivalent employment. Jobs can be full or part time. A single individual can hold multiple jobs. In short, jobs cannot be looked upon as interchangeable or comparable across industries, businesses, or locations.

Value-Added (State)

"Total value-added" refers to that portion of the value of total output that was actually created by the economic activity in an area and/or industry. Total value-added for an industry represents the value of the industry's total output 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 collectively is called "labor income".

In terms of total value-added generated from various animal agriculture and related economic activities in Iowa, animal agriculture contributes \$15.9 billion to the state's total value-added (see Figure 8). Of this amount, 49 percent comes from other animal production (mainly hog production), 18 percent from animal slaughtering (except poultry), and 17 percent from beef cattle ranching and farming.

Using data from the IMPLAN modeling system, total direct value added generated by animal agriculture represents approximately 6.3% of the state total.

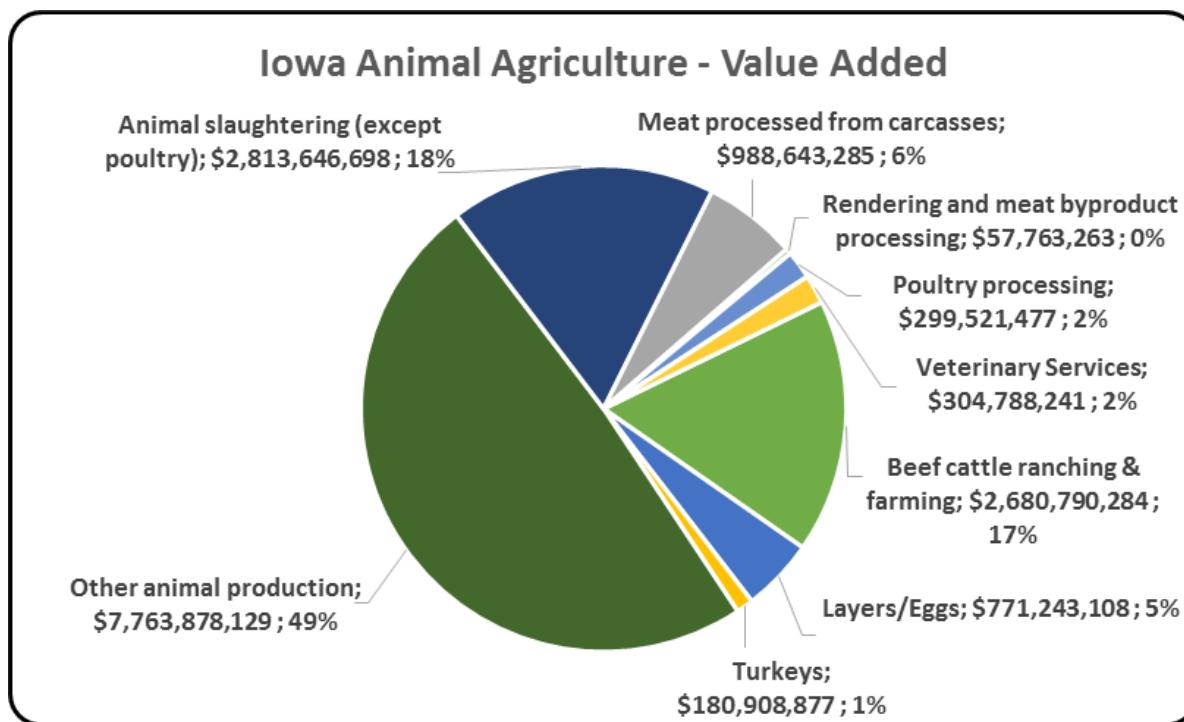


Figure 8, Iowa Animal Agriculture - Value Added

Labor Income (State)

"Labor income" refers to the sum of Employee Compensation (work for hire) and Proprietor Income (self-employed). Labor income is a sub-component of the value-added category. Figure 9 illustrates labor income derived from animal agriculture and related economic activity. As shown, Iowa's animal agriculture economic activities are a good contributor to Iowan's income. Animal agriculture contributed \$9.5 billion in total labor income in the State of Iowa. Of this amount, 48% percent is derived from other animal production (mainly hog production), 17% percent came from animal slaughtering (except poultry), and 17% percent from beef cattle ranching and farming.

Using data from the IMPLAN modeling system, total direct labor income generated by animal agriculture represents approximately 6.2% of the state total.

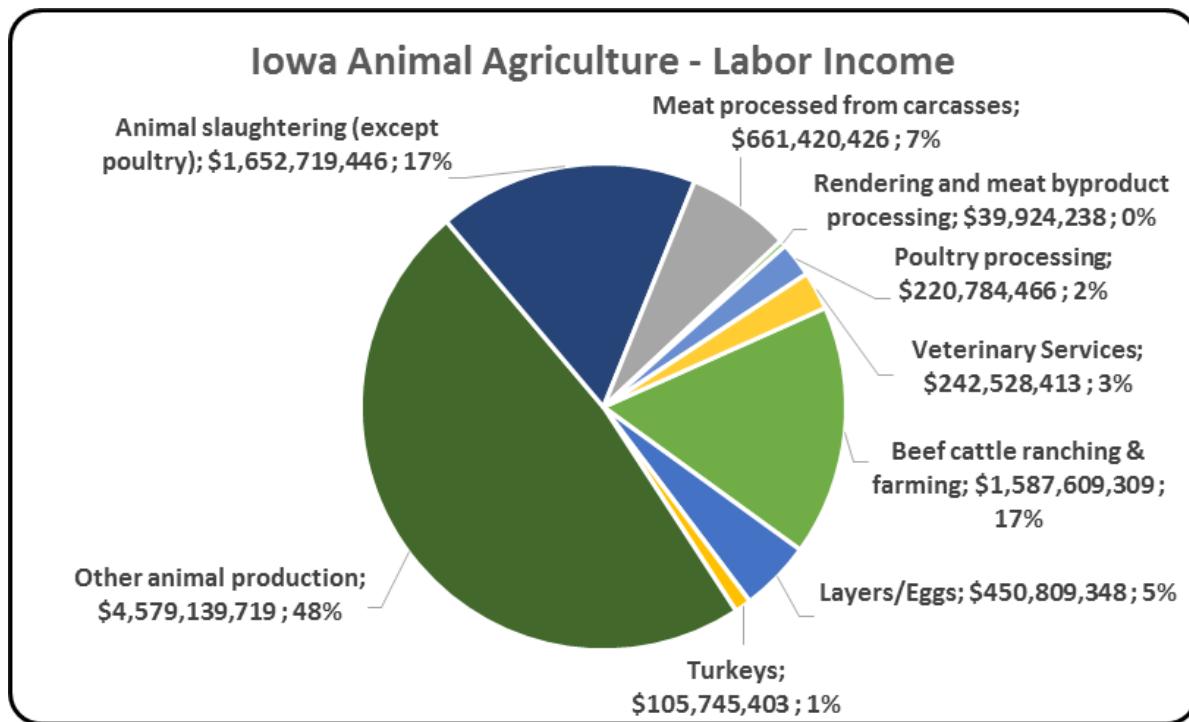


Figure 9, Iowa Animal Agriculture - Labor Income

Taxes (State)

Iowa's animal agriculture and related economic activities are also a significant source of tax revenue, contributing about \$1.2 billion at the state and local levels. Additionally, these industries contribute about \$1.9 billion at the federal level. Estimates of taxes paid by animal agriculture are shown in Figure 10 (state and local) and Figure 11 (federal).

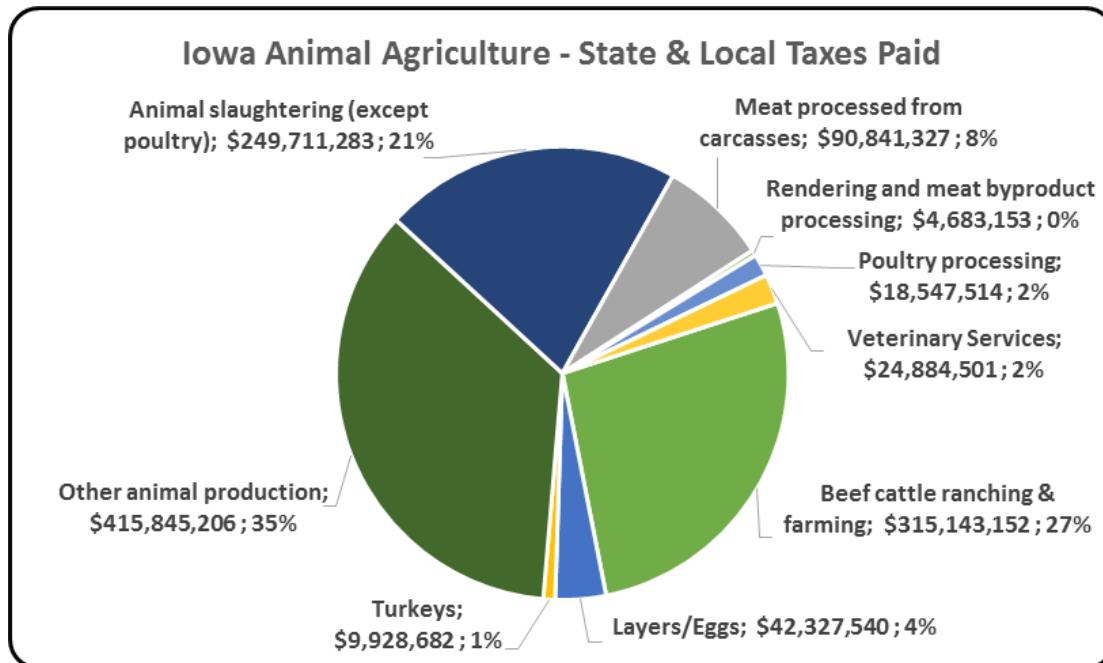


Figure 10, Iowa Animal Agriculture - State & Local Taxes Paid

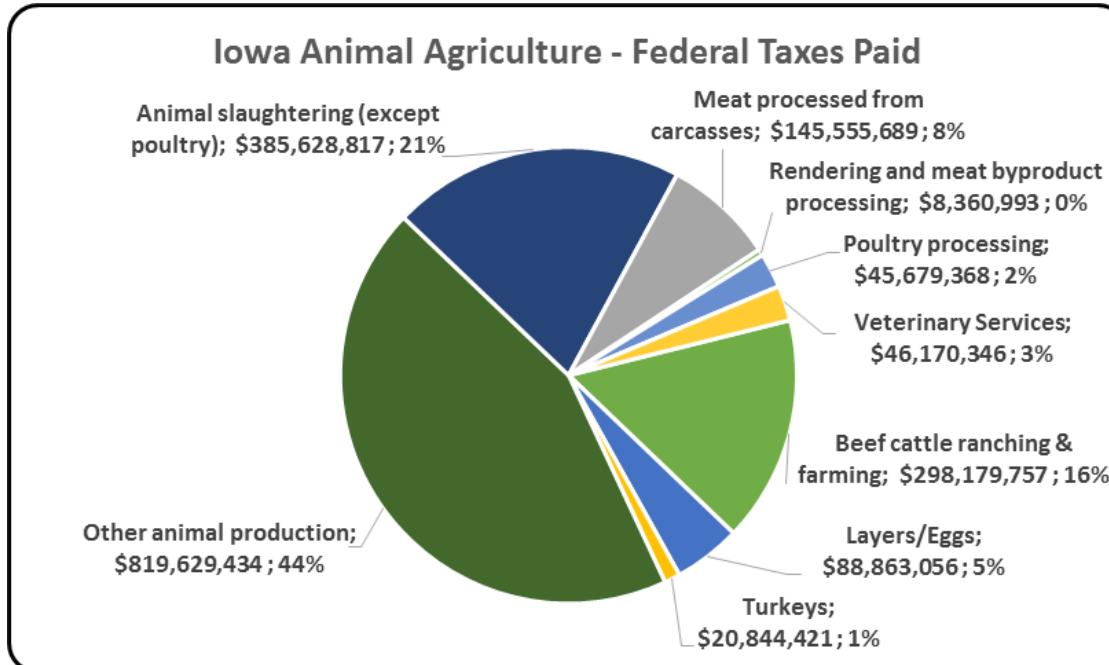


Figure 11, Iowa Animal Agriculture - Federal Taxes Paid

The taxes paid by animal agriculture in Iowa come from a variety of sources. The Income/Payroll category includes Dividends, Social Insurance Tax – Employer and Employee Contribution, and Personal Income Tax. The Property category includes Tax on Production and Imports: Property Tax, and Personal Property Tax. Corporate is defined as Corporate Profits Tax, and the Other category includes items such as Tax on Production and Imports: Sales Tax, Motor Vehicle License, Severance Tax, Excise Taxes, Custom Duty, and Personal Tax: Motor Vehicle License, Other Tax (Fish/Hunt). At the state and local levels in 2013, animal agriculture paid an estimated \$508.4 million in Other taxes, \$388.1 million in Property taxes, \$48.4 million in Corporate taxes, and \$227.0 million in Income/Payroll taxes.

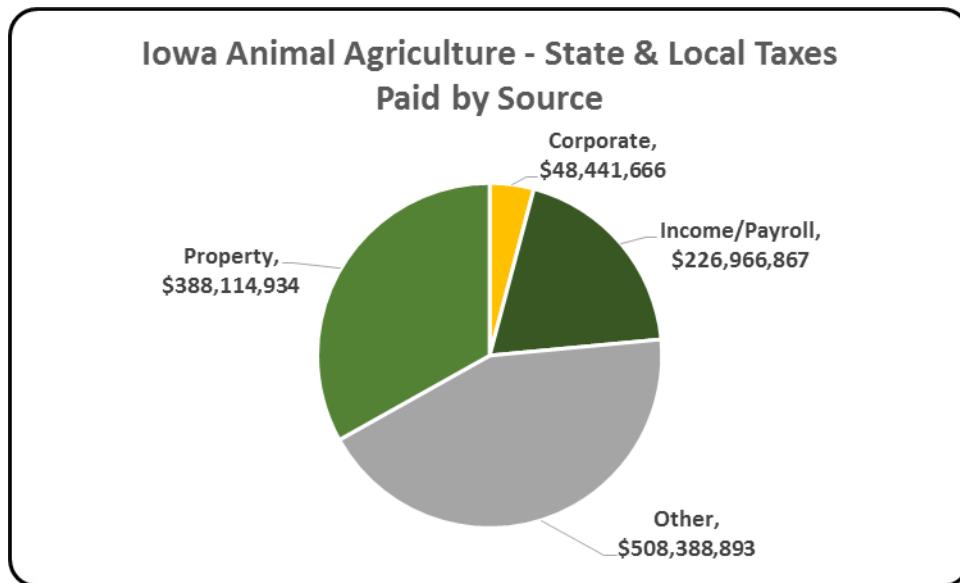


Figure 12, Iowa Animal Agriculture, State & Local Taxes Paid

At the federal level in 2013, animal agriculture paid an estimated \$1.4 billion in Income/Payroll taxes, \$385.0 million in Corporate taxes, and \$94.0 million in Other taxes.

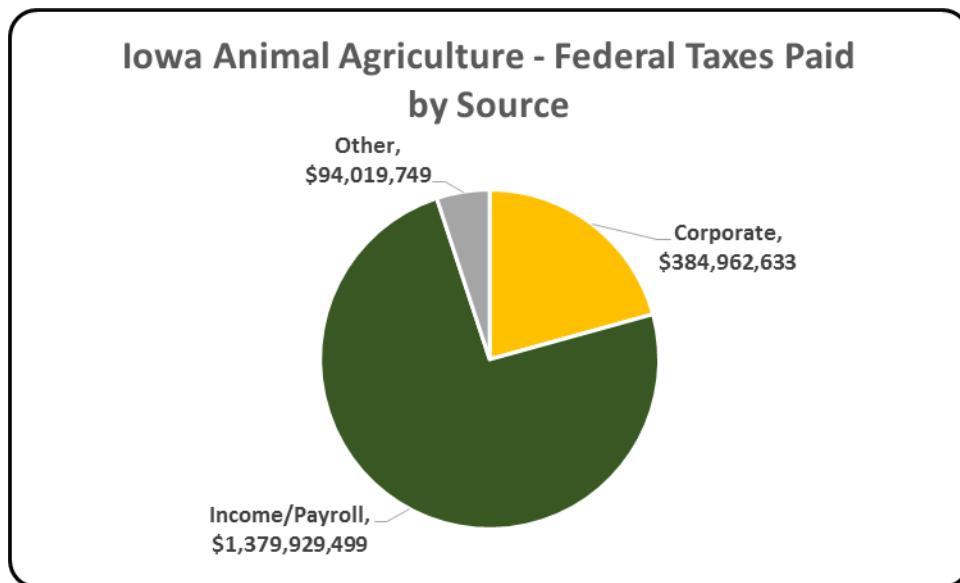


Figure 13, Iowa Animal Agriculture - Federal Taxes Paid by Source

Animal Agriculture Sector Results

Results for the animal agriculture sector analysis yielded some interesting points worthy of mention. This analysis provides a detailed look at how specific portions of the animal agriculture industries break out according to livestock and poultry species. Discussion regarding the contribution of each livestock and poultry sector of animal agriculture in terms of Output, Jobs, Value-added and Labor Income follows.

Hogs (Other Animal Production)

Results contained in this section provide estimates of the total level of economic activity that can be attributed to hog farming. This would include the raising of hogs as well as the portions of economic activity that can be attributed to hog farming by slaughtering, processing, and rendering in the State of Iowa. Similar to the state results summarized previously, results for hog farming contain estimates for Output, Jobs, Value Added, and Labor Income.

Output

In addition to the \$9.9 billion in output contributed to Iowa's economy by Iowa hog farming, \$16.8 billion in output from slaughtering, processing, and rendering can be attributed to the raising of hogs. A combination of all four industries equals a \$26.7 billion contribution to Iowa's economy. Figure 14 illustrates how this economic activity breaks out. As shown, the majority of output derived from the hog sector comes from animal slaughtering and hog production.

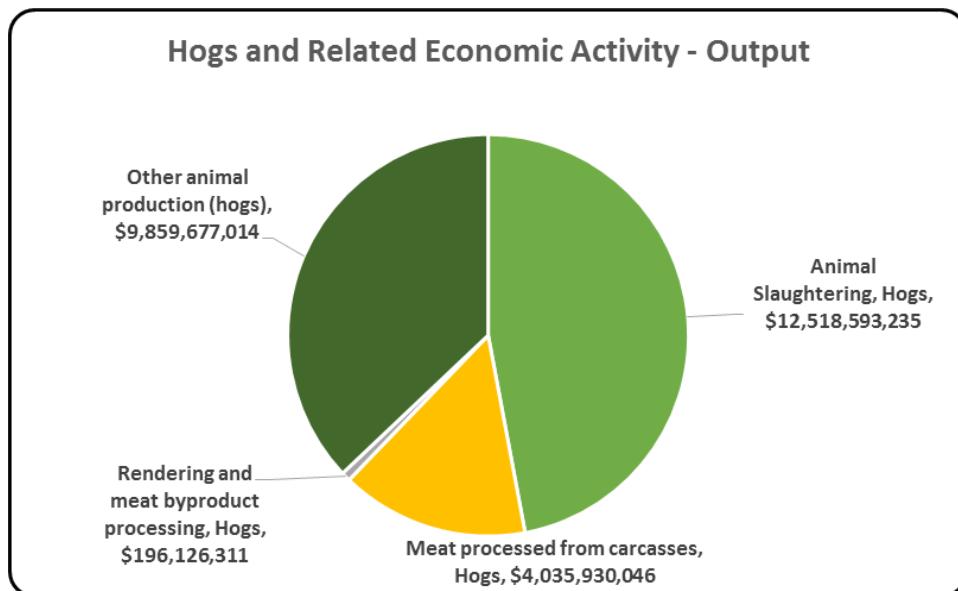


Figure 14, Iowa Hogs and Related Economic Activity - Output

Jobs

In addition to the 62,376 jobs derived by Iowa's economy from Iowa hog farming, 45,398 jobs from slaughtering, processing, and rendering can be attributed to hog farming. A combination of all four industries equals a 107,775 job contribution to Iowa's economy. Figure 15 illustrates how this economic activity breaks out. As shown, the majority of jobs derived from hog farming comes from hog production and animal slaughtering.

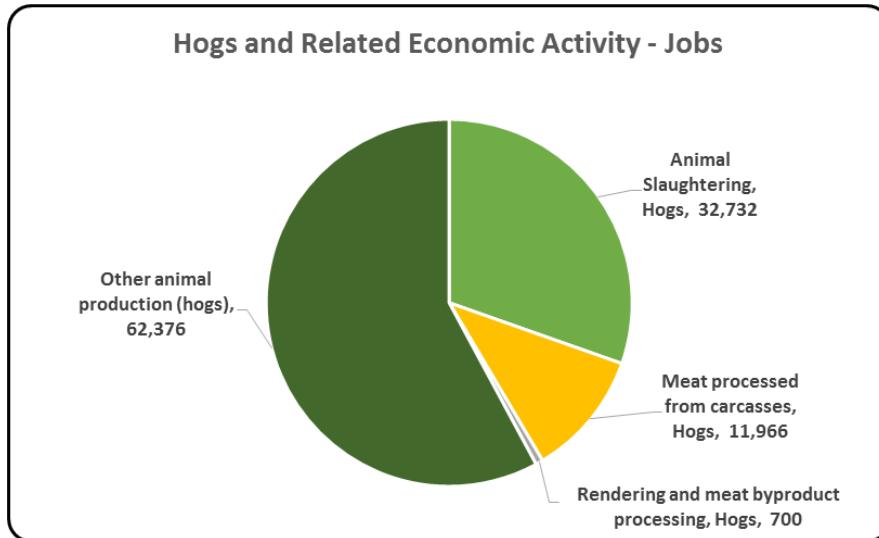


Figure 15, Iowa Hogs and Related Economic Activity – Jobs

Value Added

In addition to the \$7.8 billion in value added contributed to Iowa's economy by Iowa hog farming, \$3.7 billion in value added from the slaughtering, processing, and rendering can be attributed to hog farming. A combination of all four industries equals an \$11.5 billion contribution to Iowa's economy. Figure 16 illustrates how this economic activity breaks out. As shown, the majority of value added derived from hog farming comes from hog production and animal slaughtering.

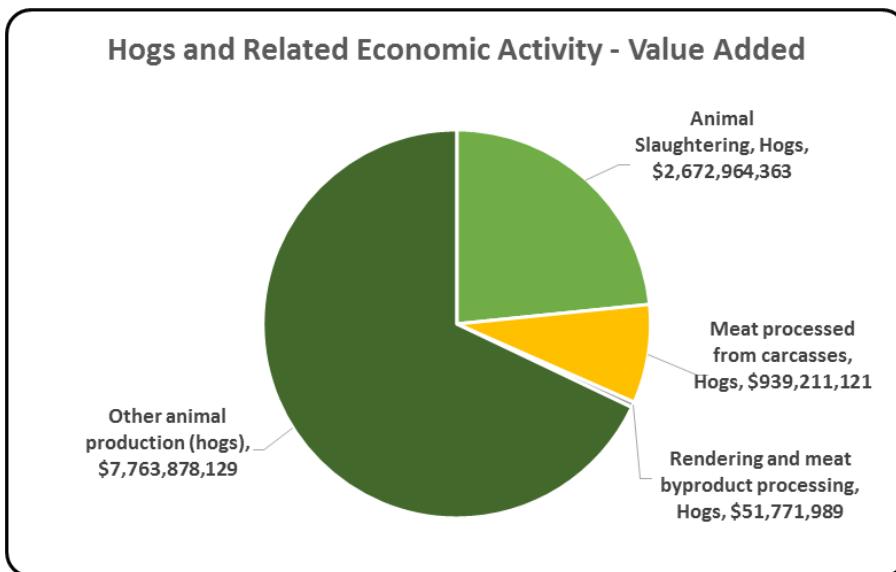


Figure 16, Iowa Hogs and Related Economic Activity - Value Added

Labor Income

In addition to the \$4.6 billion in labor income contributed to Iowa's economy by Iowa hog farming, \$2.2 billion in labor income from slaughtering, processing, and rendering can be attributed to hog farming. A combination of all four industries equals a \$6.8 billion contribution to Iowa's economy. Figure 17 illustrates how this economic activity breaks out. As shown, the majority of labor income derived from hog farming comes from hog production and animal slaughtering.

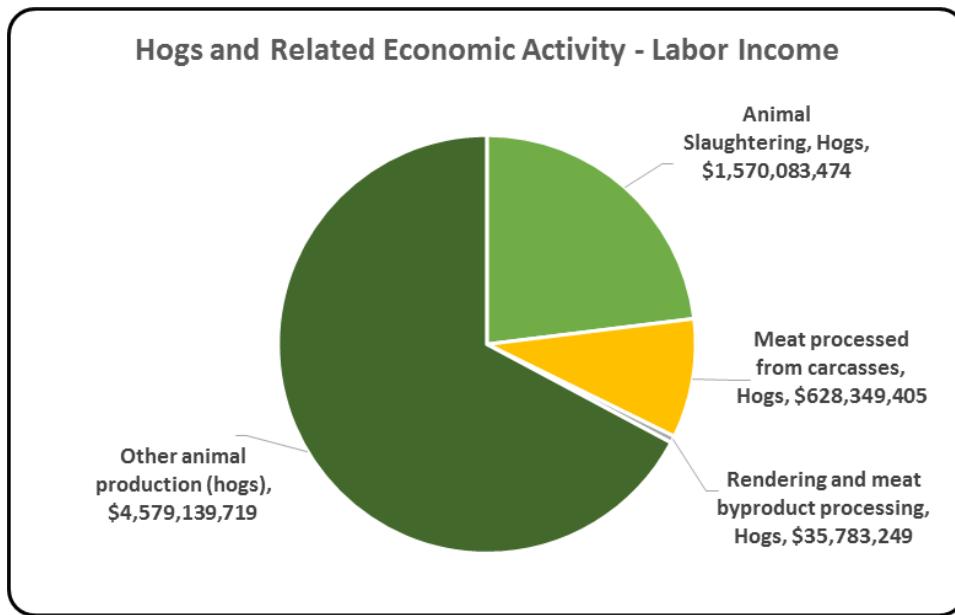


Figure 17, Iowa Hogs and Related Economic Activity - Labor Income

Taxes

In addition to the \$415.8 million in state and local taxes contributed to Iowa's economy by Iowa hog farming, \$327.7 million in state and local taxes from slaughtering, processing, and rendering can be attributed to hog farming. A combination of all four industries equals a \$743.5 million contribution to Iowa's state and local jurisdictions.

In addition to the \$819.6 million in federal taxes contributed to national economy by Iowa hog farming, \$512.1 million in federal taxes from slaughtering, processing, and rendering can be attributed to hog farming. A combination of all four industries is a \$1.3 billion contribution to the federal level from Iowa hog farming. In total, Iowa's hog farming contributes \$2.08 billion in taxes at all jurisdiction levels. Figure 18 illustrates how this economic activity breaks out.

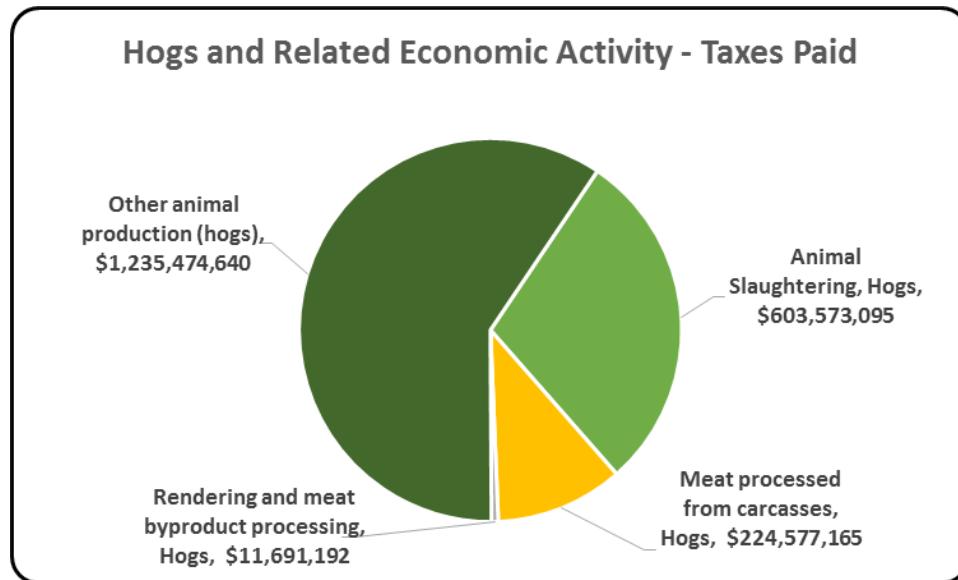


Figure 18, Iowa Hogs and Related Economic Activity – Taxes Paid

At the state and local level, hog farming in total paid an estimated \$311.8 million in Other taxes, \$233.1 million in Property taxes, \$36.5 million in Corporate taxes, and \$162.2 million in Income/Payroll taxes.

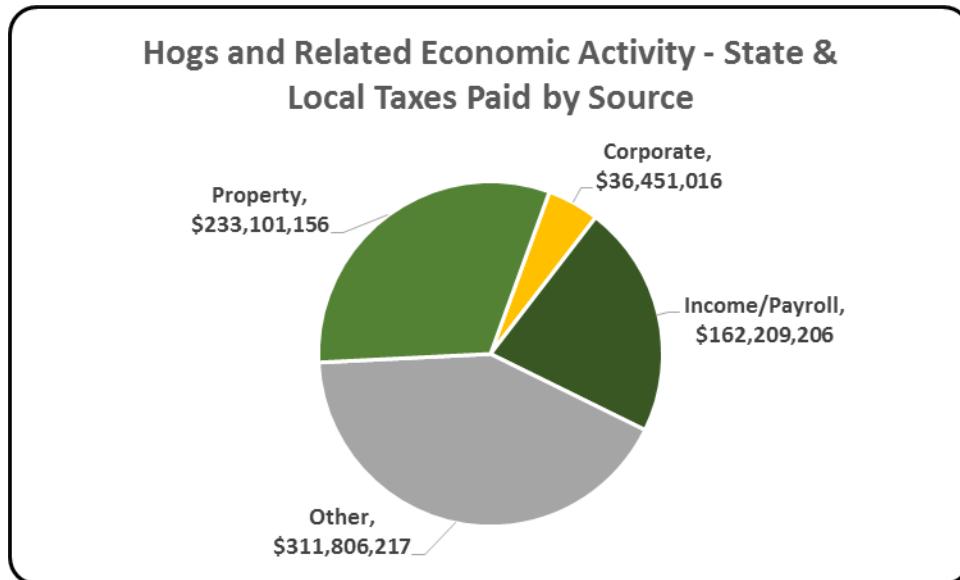


Figure 19, Iowa Hogs and Related Economic Activity - State & Local Taxes Paid by Source

At the federal level, hog farming in total paid an estimated \$985.7 million in Income/Payroll taxes, \$289.7 million in Corporate taxes, and \$56.3 million in Other taxes.

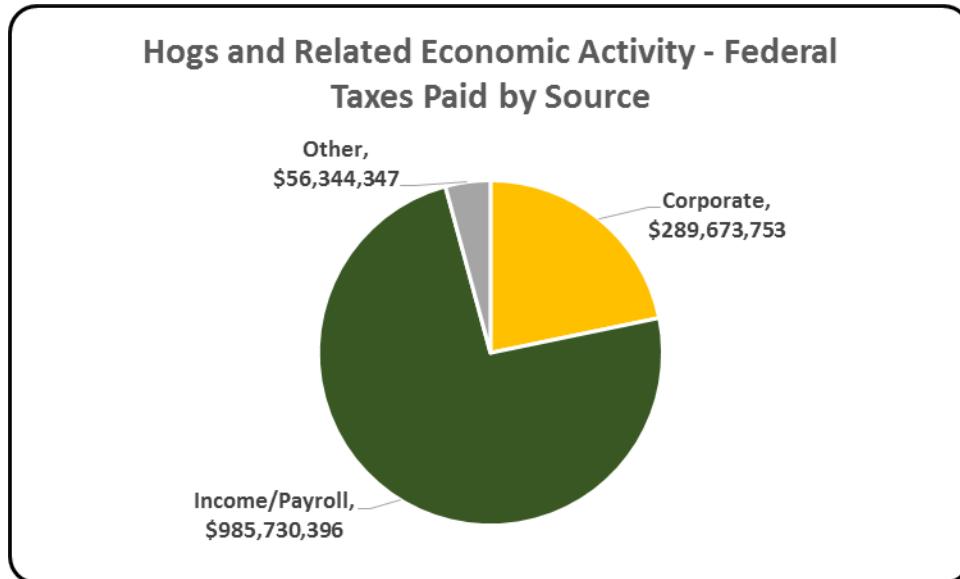


Figure 20, Iowa Hogs and Related Economic Activity - Federal Taxes Paid by Source

Cattle

Results contained in this section provide estimates of the total level of economic activity that can be attributed to cattle farming. This would include the raising of cattle as well as the portions of economic activity that can be attributed to cattle farming by slaughtering, processing, and rendering in the State of Iowa. Similar to the state results summarized previously, results for the cattle sector contain estimates for Output, Jobs, Value Added, and Labor Income.

Output

In addition to the \$6.1 billion in output contributed to Iowa's economy by Iowa cattle farming, \$881.6 million in output from slaughtering, processing, and rendering can be attributed to cattle farming. A combination of all four industries equals a \$6.9 billion contribution to Iowa's economy. Figure 21 illustrates how this economic activity breaks out. As shown, the majority of output derived from the overall cattle sector comes from cattle farming.

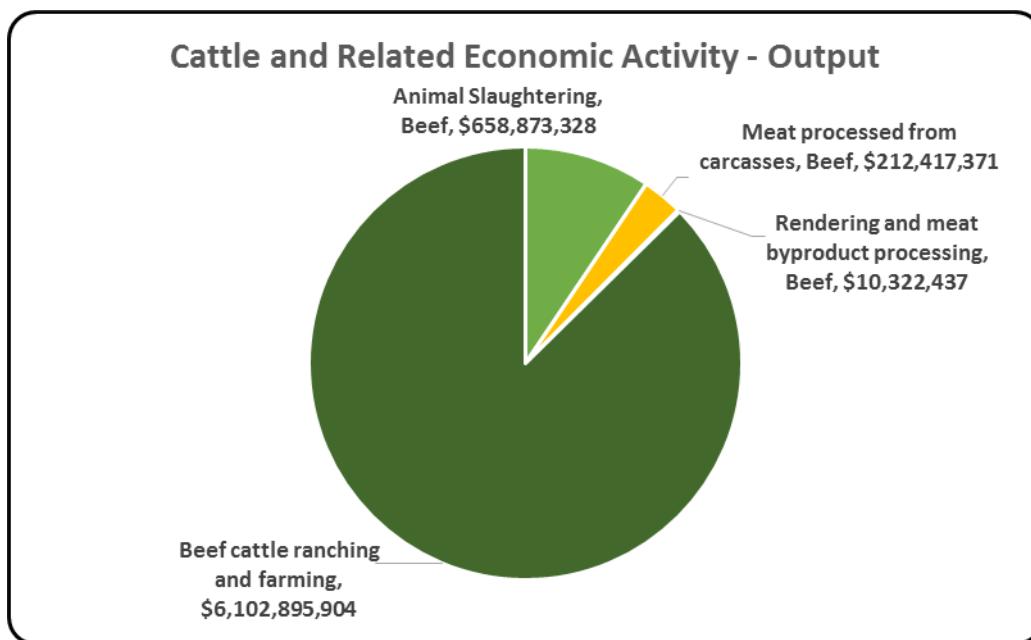


Figure 21, Iowa Cattle and Related Economic Activity - Output

Jobs

In addition to the 32,212 jobs derived by Iowa's economy from Iowa cattle farming, 2,389 jobs from slaughtering, processing, and rendering can be attributed to cattle farming. A combination of all four industries equals a 34,602 job contribution to Iowa's economy. Figure 22 illustrates how this economic activity breaks out. As shown, the majority of jobs derived from the overall cattle sector comes from cattle farming.

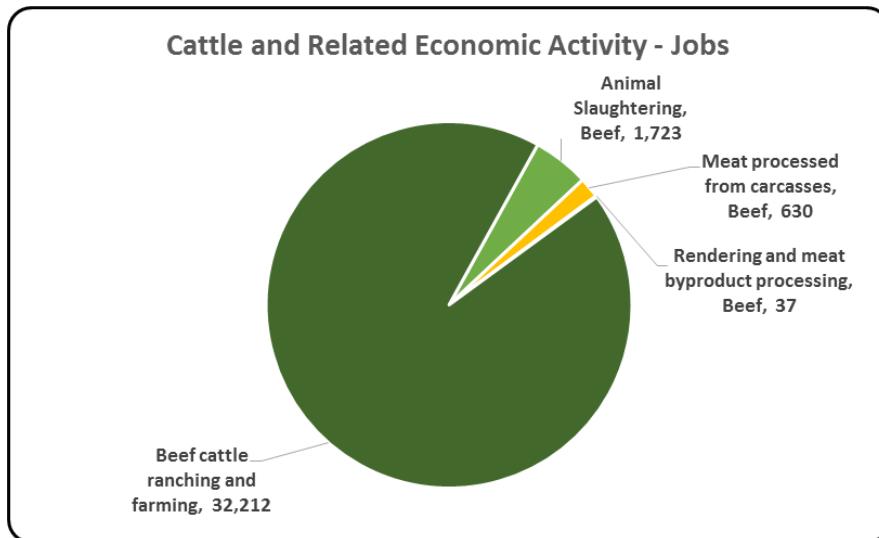


Figure 22, Iowa Cattle and Related Economic Activity – Jobs

Value Added

In addition to the \$2.7 billion in value added contributed to Iowa's economy by Iowa cattle farming, \$192.8 million in value added from slaughtering, processing, and rendering can be attributed to cattle farming. A combination of all four industries equals a \$2.9 billion contribution to Iowa's economy. Figure 23 illustrates how this economic activity breaks out. As shown, the majority of value added derived from the overall cattle sector comes from cattle farming.

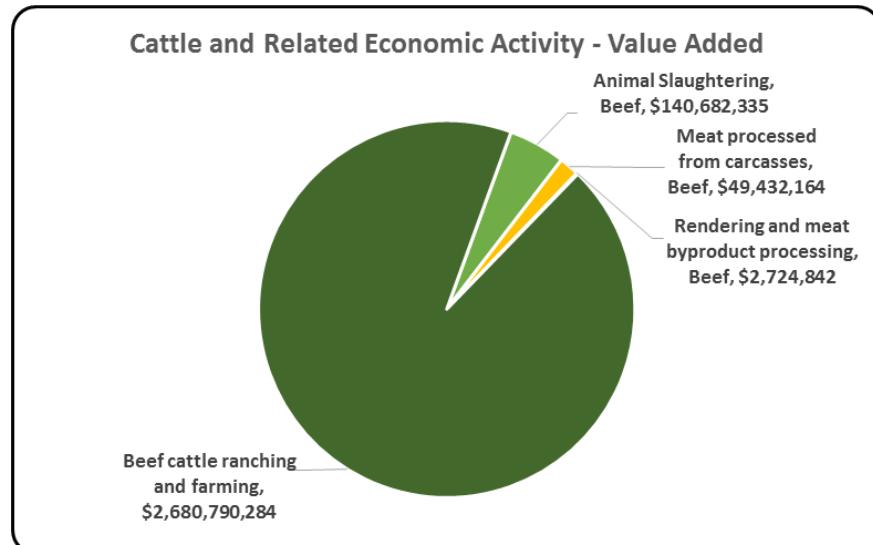


Figure 23, Iowa Cattle and Related Economic Activity - Value Added

Labor Income

In addition to the \$1.6 billion in labor income contributed to Iowa's economy by Iowa cattle farming, \$117.6 million in labor income from slaughtering, processing, and rendering can be attributed to cattle farming. A combination of all four industries equals a \$1.7 billion contribution to Iowa's economy. Figure 24 illustrates how this economic activity breaks out. As shown, the majority of Labor Income derived from the overall cattle sector comes from cattle farming.

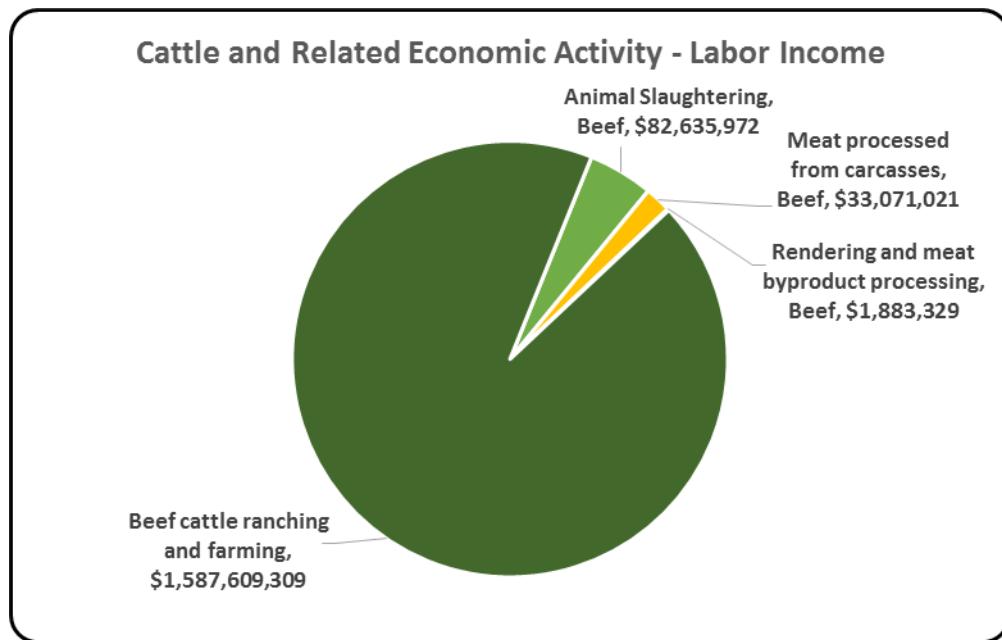


Figure 24, Iowa Cattle and Related Economic Activity - Labor Income

Taxes

In addition to the \$315.1 million in state and local taxes contributed to Iowa's economy by Iowa cattle farming, \$17.3 million in state and local taxes from slaughtering, processing, and rendering can be attributed to the cattle sector. A combination of all four industries equals a \$332.4 million contribution to Iowa's state and local jurisdictions.

In addition to the \$298.2 million in federal taxes contributed to national economy by Iowa cattle farming, \$26.9 million in federal taxes from slaughtering, processing, and rendering can be attributed to the Iowa cattle sector. A combination of all four industries is a \$325.1 million contribution to the federal level from the Iowa cattle sector. In total, Iowa's cattle sector contributes \$657.5 million in taxes at all jurisdiction levels. Figure 25 illustrates how this economic activity breaks out.

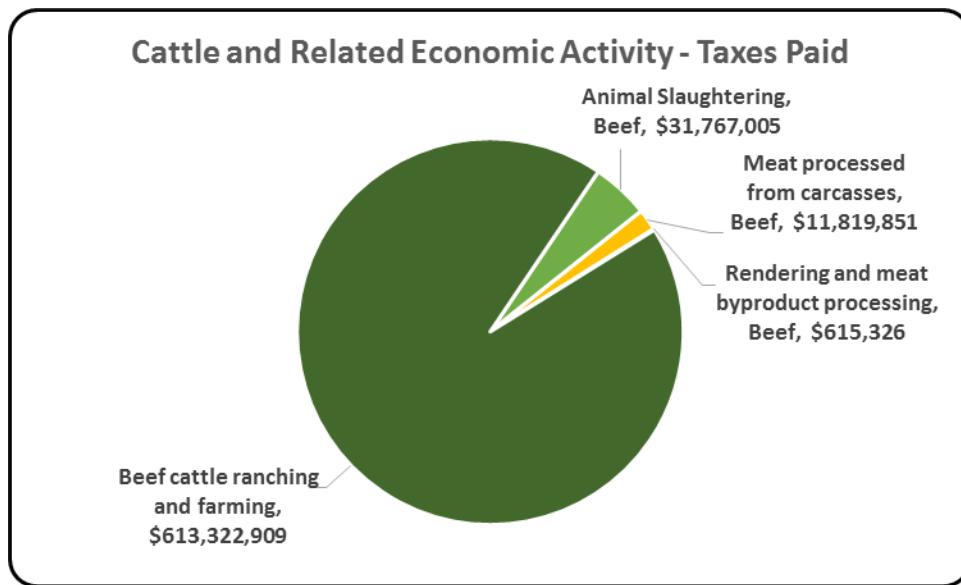


Figure 25, Iowa Cattle and Related Economic Activity – Taxes Paid

At the state and local level, cattle farming in total paid an estimated \$157.6 million in Other taxes, \$126.6 million in Property taxes, \$7.8 million in Corporate taxes, and \$40.4 million in Income/Payroll taxes.

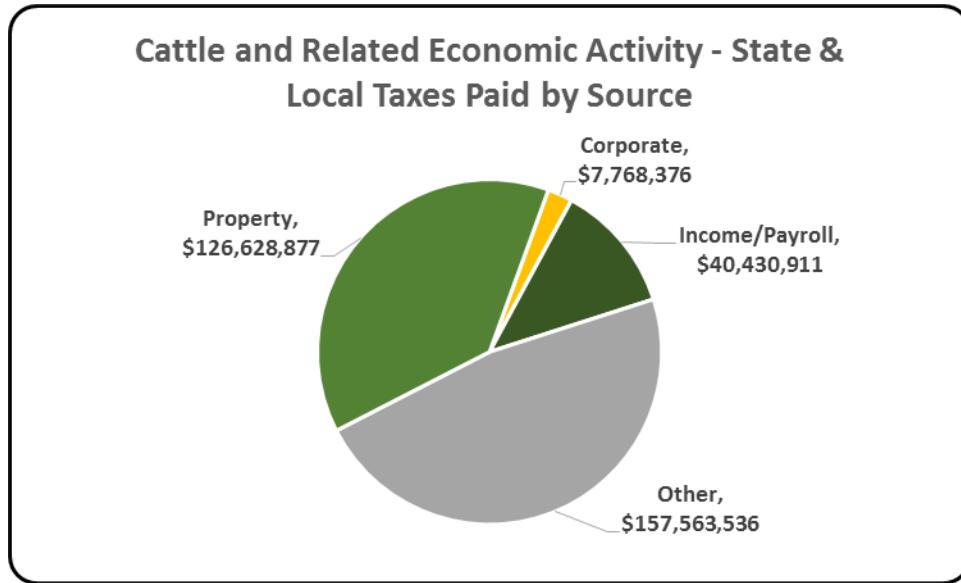


Figure 26, Iowa Cattle and Related Economic Activity - State & Local Taxes Paid by Source

At the federal level, cattle farming in total paid an estimated \$232.6 million in Income/Payroll taxes, \$61.7 million in Corporate taxes, and \$30.8 million in Other taxes.

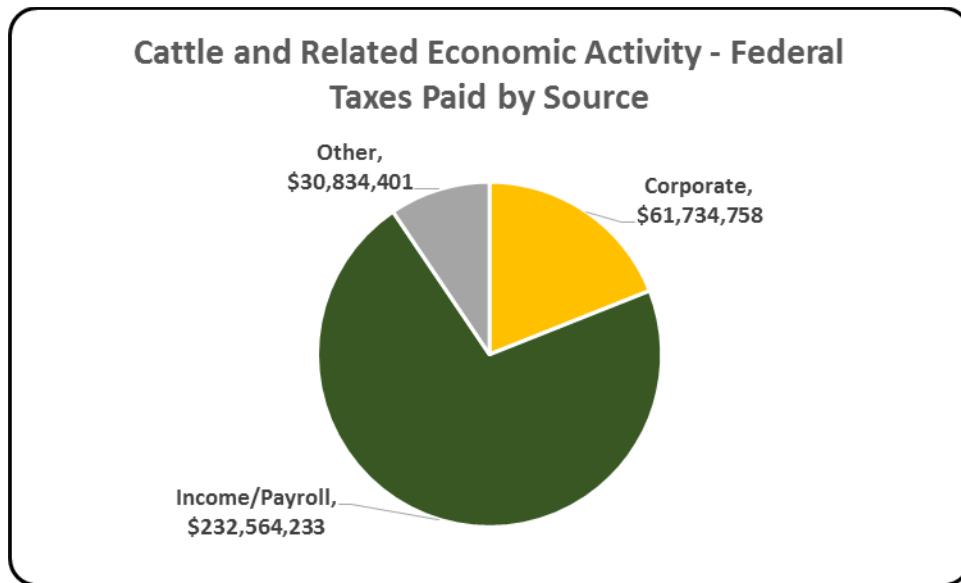


Figure 27, Iowa Cattle and Related Economic Activity - Federal Taxes Paid by Source

Turkeys

Results contained in this section provide estimates of the total level of economic activity that can be attributed to turkey farming. This would include the raising of turkeys as well as the portions of economic activity that can be attributed to turkey farming by processing and rendering in the State of Iowa. Similar to the state results summarized previously, results for turkey farming contain estimates for Output, Jobs, Value Added, and Labor Income.

Output

In addition to the \$528.7 million in output contributed to Iowa's economy by Iowa turkey farming, \$1.1 billion in output from slaughtering, processing, and rendering can be attributed to Iowa turkey farming. A combination of all three industries equals a \$1.6 billion contribution to Iowa's economy. Figure 28 illustrates how this economic activity breaks out. As shown, the majority of output derived from the overall turkey sector comes from turkey processing and turkey farming.

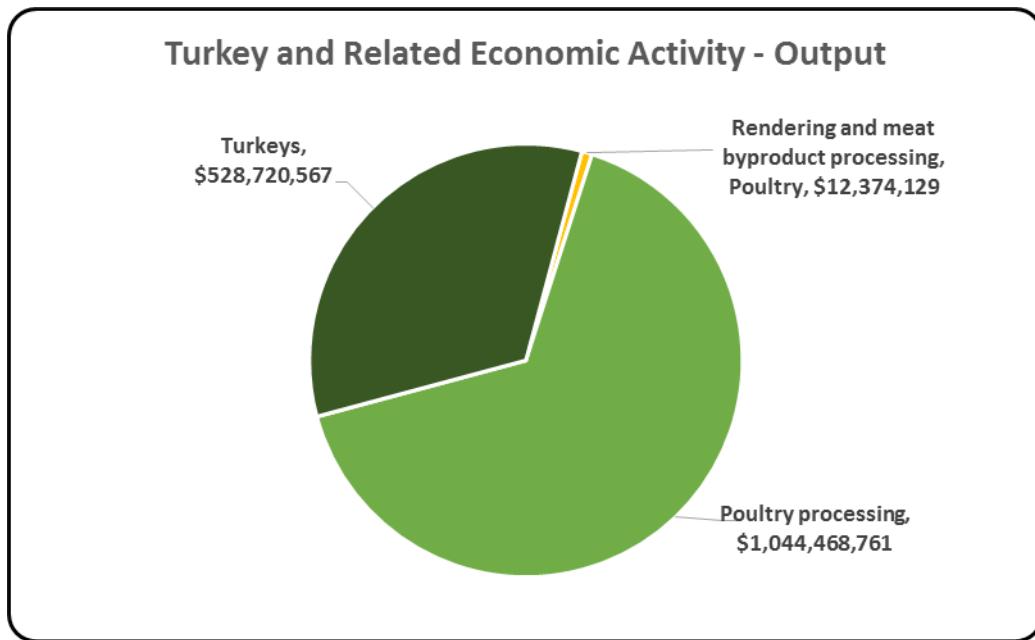


Figure 28, Iowa Turkey and Related Economic Activity - Output

Jobs

In addition to the 1,154 jobs derived by Iowa's economy from Iowa turkey farming, 4,742 jobs from processing and rendering can be attributed to Iowa turkey farming. A combination of all three industries equals a 5,897 job contribution to Iowa's economy. Figure 29 illustrates how this economic activity breaks out. As shown, the majority of jobs derived from the overall turkey sector comes from turkey processing and turkey farming.

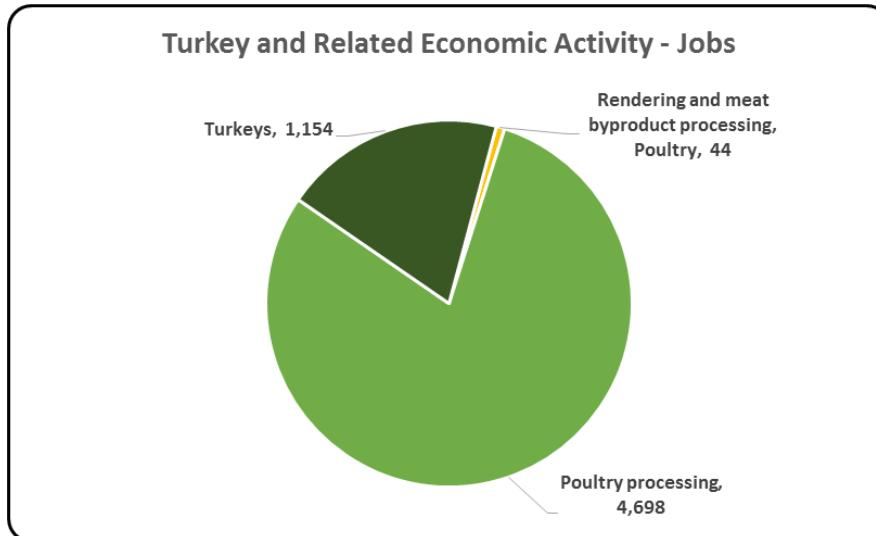


Figure 29, Iowa Turkey and Related Economic Activity – Jobs

Value Added

In addition to the \$180.9 million in value added contributed to Iowa's economy by Iowa turkey farming, \$302.8 million in value added from slaughtering, processing, and rendering can be attributed to Iowa turkey farming. A combination of all three industries equals a \$483.7 million contribution to Iowa's economy. Figure 30 illustrates how this economic activity breaks out. As shown, the majority of value added derived from the overall turkey sector comes from turkey processing and turkey farming.

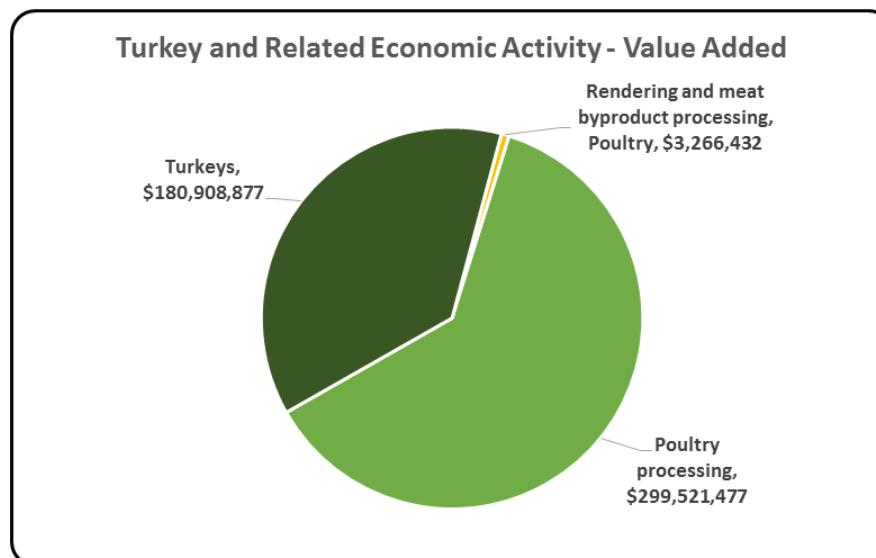


Figure 30, Iowa Turkey and Related Economic Activity - Value Added

Labor Income

In addition to the \$105.7 million in labor income contributed to Iowa's economy by Iowa turkey farming, \$223.0 million in labor income from slaughtering, processing, and rendering can be attributed to Iowa turkey farming. A combination of all three industries equals a \$328.7 million contribution to Iowa's economy. Figure 31 illustrates how this economic activity breaks out. As shown, the majority of labor income derived from the overall turkey sector comes from turkey processing and turkey farming.

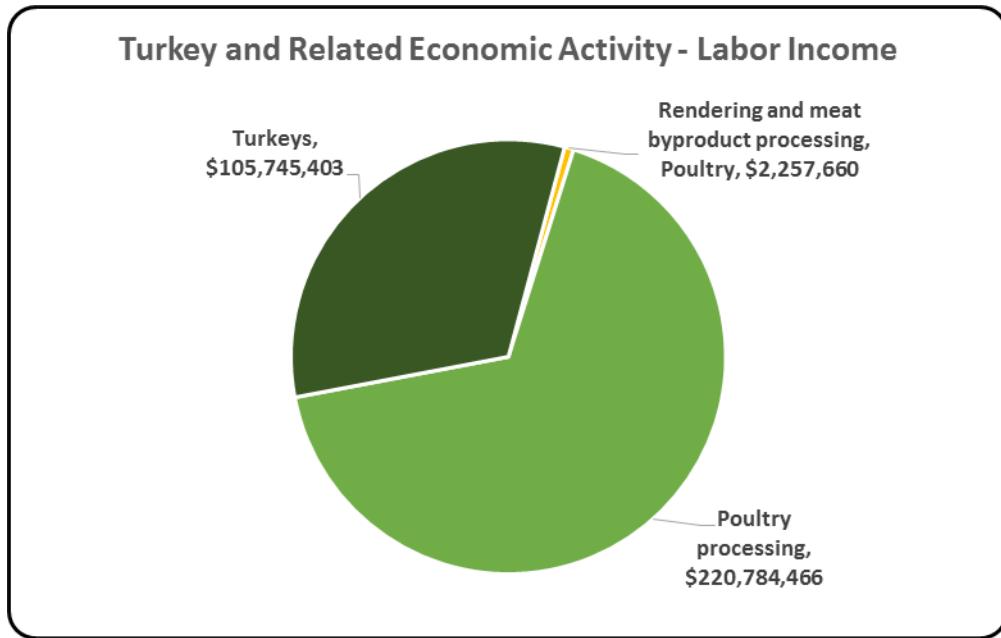


Figure 31, Iowa Turkey and Related Economic Activity - Labor Income

Taxes

In addition to the \$9.9 million in state and local taxes contributed to Iowa's economy by Iowa turkey farming, \$18.8 million in state and local taxes from slaughtering, processing, and rendering can be attributed to turkey farming. A combination of all three industries equals a \$28.7 million contribution to Iowa's state and local jurisdictions.

In addition to the \$20.8 million in federal taxes contributed to national economy by Iowa turkey farming, \$46.1 million in federal taxes from slaughtering, processing, and rendering can be attributed to Iowa turkey farming. A combination of all three industries is a \$66.9 million contribution to the federal level from Iowa turkey farming. In total, Iowa's turkey farming contributes \$95.7 million in taxes at all jurisdiction levels. Figure 32 illustrates how this economic activity breaks out.

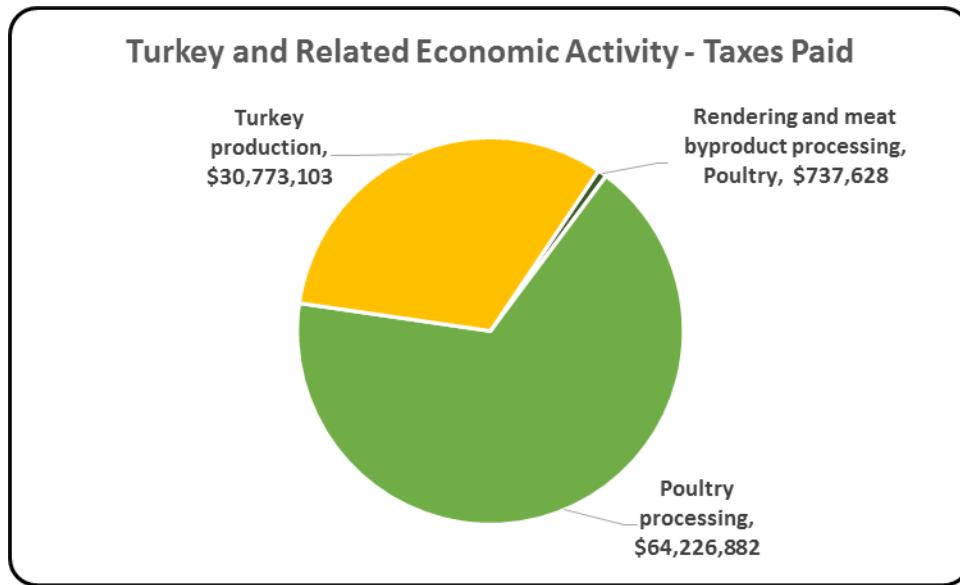


Figure 32, Iowa Turkey and Related Economic Activity – Taxes Paid

At the state and local level, turkey farming in total paid an estimated \$11.5 million in Other taxes, \$8.2 million in Property taxes, \$1.2 million in Corporate taxes, and \$7.8 million in Income/Payroll taxes.

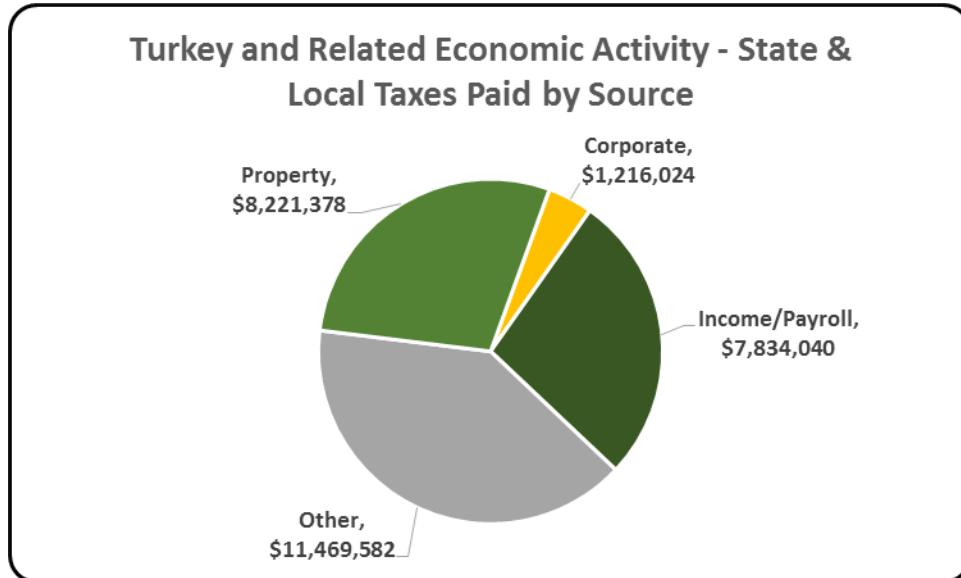


Figure 33, Turkey and Related Economic Activity - State & Local Taxes Paid by Source

At the federal level, turkey farming in total paid an estimated \$55.4 million in Income/Payroll taxes, \$9.7 million in Corporate taxes, and almost \$2 million in Other taxes.

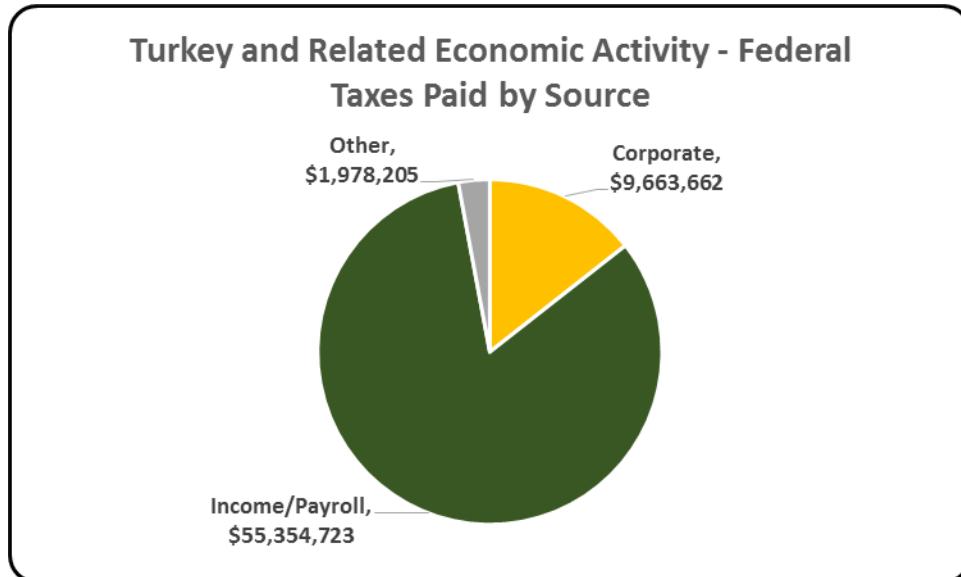


Figure 34, Turkey and Related Economic Activity - Federal Taxes Paid by Source

Egg-Laying Hens

Output, jobs, value added, and labor income data for egg processing cannot be separated from other data within the IMPLAN modeling system. This is because egg processing is a subcomponent of “All Other Food Manufacturing” within the IMPLAN data, which includes 51 other NAICS codes in addition to the egg processing industry. Without a better understanding of what share of the total economic activity provided by the egg processing industry to the total of all 52 industries is, we cannot in good faith provide an estimate of the contribution of egg processing.

However, this shortcoming in data availability, in large measure, is mitigated by changes in the structure of the egg production sector. As production practices have improved, much of the egg processing has been brought on farm, particularly for eggs that are destined for breaking. This implies that a large share (80-90%) of the economic activity derived from the processing of eggs is captured through the egg production sector. Only those eggs which are processed off farm would be included in the “All Other Food Manufacturing” and would therefore be excluded from this analysis.

In light of the above discussion, below are details related to categories of economic activity derived from the egg-laying sector by the State of Iowa:

- \$2.3 billion in Iowa output
- 4,921 jobs
- \$771.2 million in value added
- \$450.8 million in labor income
- A total of \$131.2 million in taxes at all jurisdiction levels
 - \$42.3 million in state and local taxes
 - \$88.9 million in federal taxes

At the state and local level, egg-laying hen farming paid an estimated \$16.8 million in Other taxes, \$12.1 million in Property taxes, \$2.6 million in Corporate taxes, and \$10.7 million in Income/Payroll taxes.

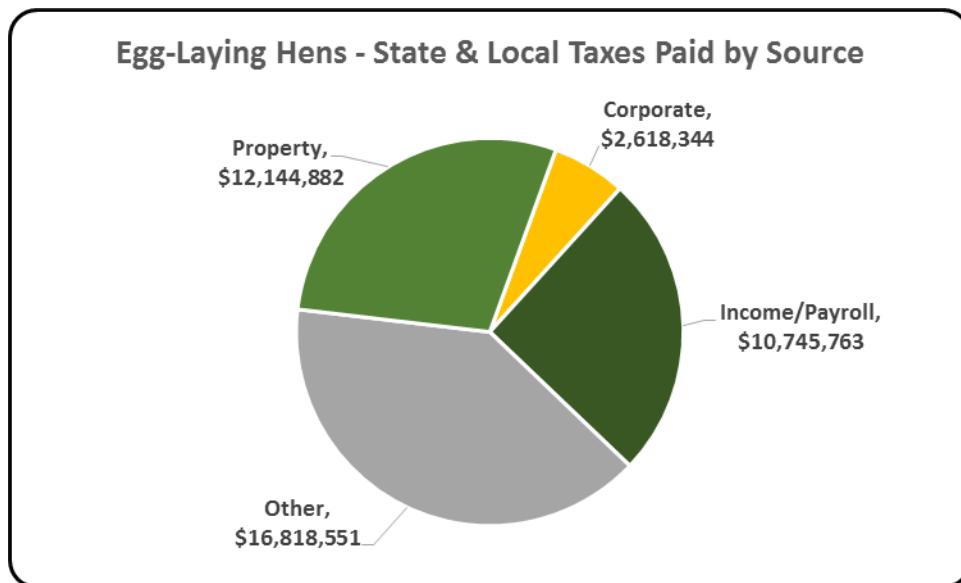


Figure 35, Egg-Laying Hens - State & Local Taxes Paid by Source (Iowa)

At the federal level, egg-laying hen farming paid an estimated \$65.1 million in Income/Payroll taxes, \$20.8 million in Corporate taxes, and \$2.9 million in Other taxes.

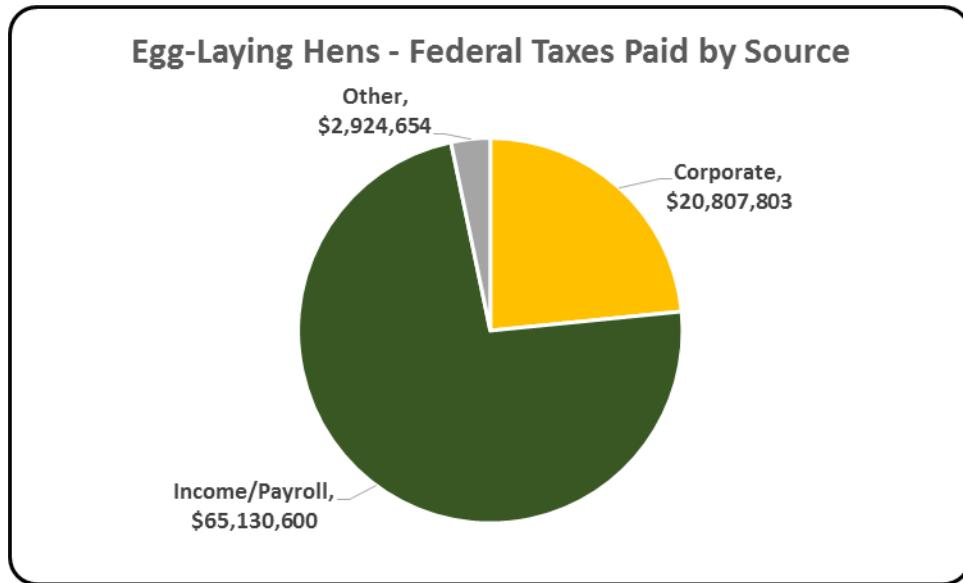


Figure 36, Egg-Laying Hens - Federal Taxes Paid by Source (Iowa)

Iowa Livestock: Looking Ahead

This research report has been conducted to gain a sense for the current state of animal agriculture in Iowa. As shown, having an understanding of the degree to which animal agriculture strengthens the state's economy is in and of itself valuable information. Given the significance of being aware of the current state of animal agriculture, it is also important to have a sense for what lies ahead. Below are a few trends and developments that have implications for animal agriculture in Iowa going forward.

Avian Influenza

The Highly Pathogenic Avian Influenza (HPAI) outbreak of 2015 severely impacted the poultry industry in Iowa. Since the beginning of 2015, the outbreak resulted in the loss of more than thirty million layers and pullets and 1.5 million turkeys in Iowa from infection or depopulation due to exposure to the virus. Layer farms affected by HPAI across the U.S. were in Iowa, Minnesota, Nebraska, Wisconsin, and South Dakota, and represent a significant percentage of pre-outbreak inventories, particularly for Iowa (52%) and Minnesota (nearly 40%).

Turkey operations in Arkansas, California, Iowa, Minnesota, Missouri, North Dakota, South Dakota, and Wisconsin saw the largest losses. The most significant losses have been in Iowa, South Dakota, and Minnesota who have lost 15%, 12% and 10% of their pre-outbreak inventories, respectively.

Even though the spread was contained and did not resurface in fall 2015 and all affected farms have been cleared for repopulation, the industry (particularly egg-laying hens) continues to face headwinds. Many layer operations affected by the outbreak expect to take 18-24 months (from when they depopulated) before reaching pre-outbreak production levels due to quarantine requirements, access to pullets, and a desire to maintain a desired age distribution among layers. Turkey producers were out of production for approximately 30 weeks.

In mid-January 2016, a new strain of HPAI surfaced in Indiana. Indiana largely escaped the impacts of the outbreak in 2015. Given the newness of the current outbreak, we won't know for some time how quickly and to what states it may spread. Due to recent experience with the outbreak in 2015, Iowa's poultry and egg producers will continue to be extra vigilant in keeping the virus at bay.

Livestock, Poultry, and Egg Returns

Due to Iowa's combination of a temperate climate and access to high quality feeds and forages, the state will continue to be home to many livestock and poultry. However, current and expected returns for hogs and cattle in particular are under pressure, which will slow herd expansion in the short term. With the production impacts of the Porcine Epidemic Diarrhea virus (PEDv) outbreak in 2013-14 largely offset by higher prices leading to higher finish weights and retention of sows (and by extension more pigs), higher prices have fallen to be more in line with supply, leading to current and expected negative returns to hog farmers.

For cattle farming, the prolonged, severe drought of 2011-2013 in the southern plains states caused a liquidation of portions of the cattle industry in that area. This caused record high prices, which led to higher beef production in 2014 and 2015. In light of higher production, current beef prices are much lower than a few years ago and cattle producers are experiencing negative returns.

In light of the challenging economic environment that hogs and cattle are in, we expect something similar to happen in the egg and turkey (to a lesser extent) industries. Given the large production losses

in both poultry sectors, higher prices have provided incentives to increase production by those who are able. Similar to the hog and cattle industries, higher prices are being (and will be) cured by higher production.

What do current and expected lower returns to livestock and poultry farmers mean for Iowa's economy? In reality, over the mid to long term, not as much as one would think. As mentioned previously, Iowa is an ideal place for raising livestock and poultry. Like many industries, there are cycles that repeat over time. Better production economics will return to hogs and cattle and the currently high egg prices will correct as the effects of Avian Influenza continue to subside (barring a large scale loss due to the January 2016 outbreak). Due to Iowa's diverse agricultural economy, challenges in one area are typically offset by a good situation in another.

Spatial Shift in Livestock and Poultry Production

Due to a combination of adverse weather/climate events and a challenging regulatory environment in other parts of the United States, Iowa has been the beneficiary of relocated livestock and poultry in recent years. The severe and prolonged drought in the southern plains has caused the cattle herd to move north to where temperatures are more temperate, rainfall is more plentiful, and forage more accessible. Given the fact that lower rainfall continues to be a challenge in southern states, what has been considered a shorter term, perhaps temporary shift may become more enduring than first thought.

Another cause for spatial shifts in the production of livestock, poultry and eggs is a challenging regulatory environment. These can come in the form of bans on certain production practices or environmental standards that disproportionately affect animal agriculture. As certain areas become "unfriendly" to animal agriculture, the industry will move elsewhere. In general, Iowa is considered an animal agriculture friendly state, which implies that animal agriculture will continue to do well in Iowa.

Attractiveness to Young Farmers

As of the 2012 USDA Census of Agriculture, the average age of farmers in Iowa was 55.6 years, which leaves many farmers looking to transition their farm to a younger generation in the near future. Since row crop farming generally requires large capital investments, livestock farming is often times a good transition step to help young farmers get started in agriculture. Engaging in animal agriculture is generally a more physically-intense occupation than other portions of agriculture. This characteristic also lends itself to appeal to a younger generation.

Additional Information

For further information on animal agriculture's contribution to Iowa's economy: While this report deals with the economic contribution of animal agriculture at the state level, results from a similar study on the economic contribution of all agriculture in the state of Iowa, including county level data, can be found here: <http://tinyurl.com/DIS-Economic-Impact>. Additionally, economic impact assessments (completed within the last few years) related to the added value a new hog or cattle farm bring to a local economy can be found here:

- <http://tinyurl.com/Open-Feedlot-Impact>
- <http://tinyurl.com/Hog-Farm-Impact>
- <http://tinyurl.com/Feedlot-Impact>

This study was prepared for the Coalition to Protect the Rural Economy by [Decision Innovation Solutions](#). The Coalition to Protect the Rural Economy is organized to study and analyze animal agriculture and the rural economy. The Coalition recognizes the importance of animal agriculture in securing the continued economic vitality of rural Iowa. Many rural Iowans hold jobs that would not exist without a strong and growing agricultural economy. The coalition educates policymakers on the impact of animal agriculture and advocates for best practices that support rural communities.