

# 2009 Iowa Ag Economic Contribution Study

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Prepared  
for:



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by:



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**Table 1, Acronyms**

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

## Executive Summary

The intent of this study has been to develop an understanding of the current economic status of Iowa agriculture and quantify its contribution to Iowa's economy as a whole, as well as each of its 99 counties. This research has been conducted using the same methodology and estimating procedures as the original study, which was completed in 2005 by Iowa State University (using the 2002 Census of Agriculture). As with the original study, data from the most recent Census of Agriculture (2007), the Bureau of Economic Analysis, and IMPLAN (a software company which estimates economic relationships) datasets were relied upon.

There are several very interdependent industries in Iowa – food manufacturing, feed manufacturing, production agriculture, and several supporting industries. Together, these three industries are critical to Iowa. This analysis shows that removal of any one of the food manufacturing, feed manufacturing or production agriculture industries would likely cause significant adverse impacts in remaining industries.

The results of this study show that Iowa continues to be an extremely important agricultural state and agriculture plays a crucial role in the overall economic health of the State of Iowa. Iowa agriculture is connected to a large, integrated set of industries – from the production of agricultural commodities to food and feed processing; from agricultural input manufacturing to many ag-support industries.

The study also reaffirms the importance of livestock (including dairy) and poultry farming's contribution to the state's economy. Statewide household income attributed to livestock and poultry production, for example, is just less than \$1.1 billion (0.9% of state total). Livestock and poultry farming also contributes 43,324 jobs, 2.2 percent of the state's total. Processing of the meat and dairy produced from the state's livestock and poultry accounts for 89,612 jobs (4.5% of state total) with total output valued at \$22.1 billion (8.2% of state total).

Farming in Iowa continues to evolve and is becoming more efficient, with a trend of fewer farmers involved in the actual growing of commodities. Iowa's ag and ag-related industries have maintained or increased their share of the state total since 2002. This study found that Iowa has an agricultural resource base that grows with the economy, due in large part to its integration across all sectors of the economy.

## Key Findings

According to the 2007 Census of Agriculture, there were 92,856 Iowa farms in 2007. These farms included:

- 30,747,550 acres, or 86 percent of Iowa's land area
- The 2007 market value of land, buildings, and machinery averaged \$1,258,794 per Iowa farm, which was more than 50% higher than in 2002.
- A combination of corn, soybeans, cattle, and hogs continue to account for nearly 90 percent of Iowa farm marketing receipts.
- Iowa was first or second in the nation in annual sales for corn, soybeans, hogs, and eggs.
- Iowa was the fourth largest marketer of cattle in the nation.

- Iowa produced over one-fourth of the hogs sold in the nation.
- Iowa grew nearly one-sixth of the soybeans sold in the nation.
- Following California and Texas, Iowa is consistently the third largest producer of agriculture commodities (by value) in the nation.
- 2007 production agriculture and ag-related industries account for **\$72.1 billion in output, or 27 percent of Iowa's total**, for an increase of two percentage points above 2002 estimates.
- 2007 production agriculture and ag-related industries account for **331,880 jobs; 1 in every 6 Iowans can trace the foundation of their job to agriculture**. This measure of jobs was not estimated in the 2005 study.
- 2007 production agriculture and ag-related industries account for **\$22.8 billion in value-added, or 19 percent of Iowa's total**, for an increase of one percentage point over 2002 estimates.
- 2007 production agriculture and ag-related industries account for **\$12.6 billion in labor income, or 10 percent of Iowa's total**, for a decrease of two percentage points over 2002 estimates.
- 20% of Iowa's counties **derive at least one half** of their total output from ag and ag-related industries.
- 44% of Iowa's counties **derive at least one fourth** of their jobs from ag and ag-related industries.
- 12% of Iowa's counties **derive at least one fifth** of their labor income from ag and ag-related industries.
- 53% Iowa's counties **derive at least one fourth** of their total value-added from ag and ag-related industries.

## Background

### Iowa Agriculture

With more than 86 percent of Iowa's land devoted to the production of food, feed, fiber, and fuel, the State of Iowa plays a critically important role in providing a nation of slightly more than 300 million residents in 2007<sup>1</sup> with life's necessities. The data support this notion – consider the following:

From 2004-2007, Iowa was consistently at the top of the following<sup>2</sup>:

- Corn harvested acreage and production
- Soybeans harvested acreage and production
- Total acres of principal crops harvested
- Eggs produced
- Hog marketings

Additionally, from 2004-2007, Iowa was consistently in the top five for the following<sup>3</sup>:

- Alfalfa hay & mixtures production
- Oat production
- Red meat production
- Pig crop

### Iowa Farm Demographics

According to the 2007 Census of Agriculture<sup>4</sup>, there were 92,856 farms in Iowa in 2007 (see Table 2), which was a net increase of 2,201 farms (2.4%) from 2002. These farms were found on 30,747,550 acres. The average size of an Iowa farm in 2007 was 331 acres, nineteen acres per farm fewer than in 2002. From a national perspective, the average farm size in 2007 was 418 acres, thirteen acres per farm fewer than in 2002. On a net basis, the number of farms at the national level increased by 75,810 farms between the years 2002 and 2007. The 2000 U.S. Census indicates that 171,374 people or 5.9 percent of Iowa's population live on farms. This compares with 1.1 percent of the U.S. population living on farms. Iowa continues to be a rural state in comparison to most other states in the United States.

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<sup>1</sup> [http://www.census.gov/popest/data/historical/2000s/vintage\\_2007/](http://www.census.gov/popest/data/historical/2000s/vintage_2007/)

<sup>2</sup> <http://www.quickstats.nass.usda.gov>

<sup>3</sup> <http://www.quickstats.nass.usda.gov>

<sup>4</sup> <http://www.agcensus.usda.gov>

	2007	2002	1997
Number of Iowa farms	92,856	90,655	96,705
Average Iowa Farm Size (acres)	331	350	334
Market Value (per farm)			
Land and Buildings (\$)	\$ 1,122,023	\$ 707,730	\$ 559,678
Machinery and Equipment (\$)	\$ 136,771	\$ 100,422	\$ 79,607
Farm Products Sold (\$)	\$ 219,890	\$ 135,388	\$ 125,766
Livestock Inventory			
Cattle and Calves	3,982,344	3,535,945	3,717,394
Beef Cows	904,100	987,670	1,051,178
Milk Cows	215,391	206,965	222,090
Hogs and Pigs	19,295,092	15,486,531	14,513,319
Laying Chickens	53,793,712	38,650,210	21,514,768
Broiler Chickens	10,257,286	9,558,127	6,919,963
Cattle and Calves Sold	3,635,880	2,929,704	2,936,978
Hogs and Pigs Sold	47,279,443	41,232,492	27,340,921
Production (bushels)			
Corn for Grain	2,292,163,101	1,851,276,224	1,581,093,092
Wheat for Grain	1,383,753	961,995	932,358
Oats for Grain	4,481,462	10,761,952	14,451,930
Soybeans	430,739,578	487,380,897	459,309,682

**Table 2, Historical Census of Agriculture Data (USDA)**

As with other recent releases of the quinquennial Census of Agriculture, the 2007 installment defines “farm” as any operation that produces for sale at least \$1,000 worth of agricultural commodities, or would produce \$1,000 worth of primary agricultural commodities for sale in a normal year. The definition is based on expected sales (or value attached thereto) rather than ownership or various operating characteristics. New to the 2007 Census of Agriculture is a more granular categorization of what types of farms are in operation throughout the nation. Specifically, the USDA has categorized farms according to the following typology (please see Appendix A for more information):

Limited Resource	Farming Occupation/Higher Sales
Retirement	Large Family
Residential/Lifestyle	Very Large Family
Farming Occupation/Lower Sales	Non-family

Using the typology structure above, Figures 1 and 2 illustrate how these various farm types break out according to percent of total farms and percent of total sales. As shown at the state and national levels, a smaller share of farms produce a larger share of sales, and these farms tend to be larger in size.

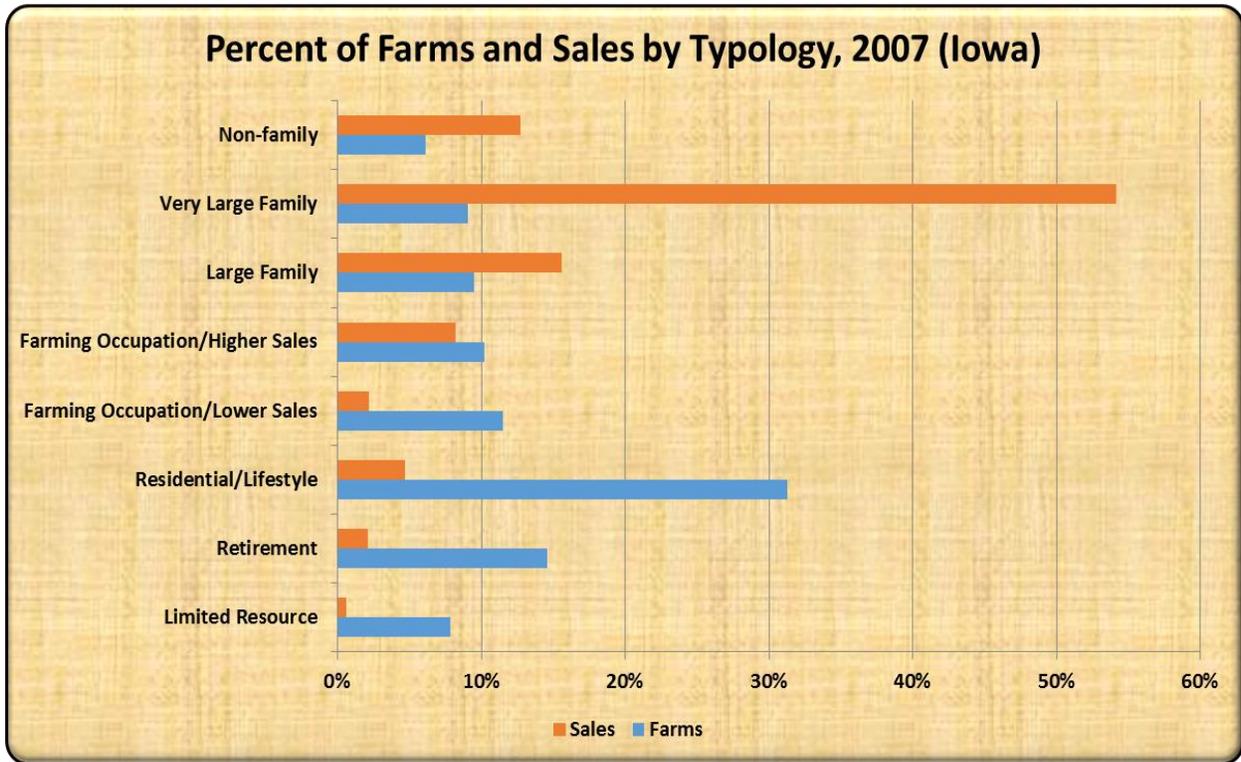


Figure 1, Percent of Farms and Sales by Typology 2007 (Iowa)

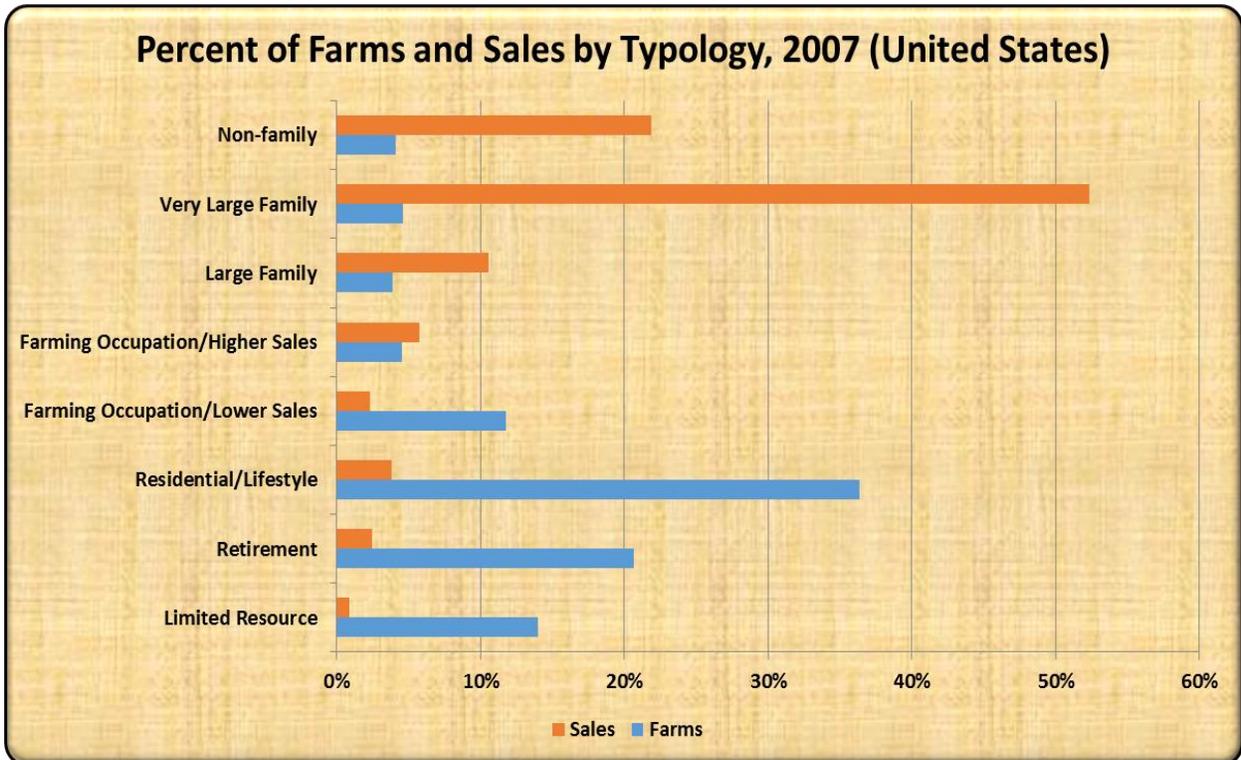


Figure 2, Percent of Farms and Sales by Typology 2007 (United States)

### **Farm Employment**

In the early nineteenth century, nearly all employment in Iowa was related to farming. Similar to many other industries, technology at both the farm and agribusiness levels has led to a steady decline in the share of Iowa's employment devoted to the production and conversion of commodities grown in the state. However, while the share of employment directly related to agriculture has decreased over time, the value of agriculture continues to increase, illustrating a long-standing continuous change in the structure of Iowa agriculture.

### **Net Farm Income**

Figure 3 shows Iowa data regarding the sales value of crops and livestock and what these sales have translated to in terms of direct value-added for the years 2002-2007. Using these data from the USDA, Economic Research Service<sup>5</sup>, net farm income increased from about \$1.9 billion in 2002 to \$5.3 billion in 2007. This represents a five-year increase of 173% from 2002-2007, a remarkable change in a short period of time.

### **Capital Investment**

While the direct value-added to the production and conversion of commodities in Iowa is certainly impressive, farming in general reflects a substantial capital investment. The 2007 Census of Agriculture reports a per-farm average market value of land and buildings on Iowa farms of \$1.122 million. Per-farm market value of machinery and equipment in 2007 was \$136,771. These state level per-farm averages compare to a national average of \$791,138 for land and buildings and \$88,357 for machinery and equipment. 2007 figures at the state and national level represent a 33-59% increase over 2002 levels. This increase in capital investment represents the potentially risky nature of farming.

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<sup>5</sup> [http://nass.usda.gov/Statistics\\_by\\_State/Iowa/Publications/Annual\\_Statistical\\_Bulletin](http://nass.usda.gov/Statistics_by_State/Iowa/Publications/Annual_Statistical_Bulletin)

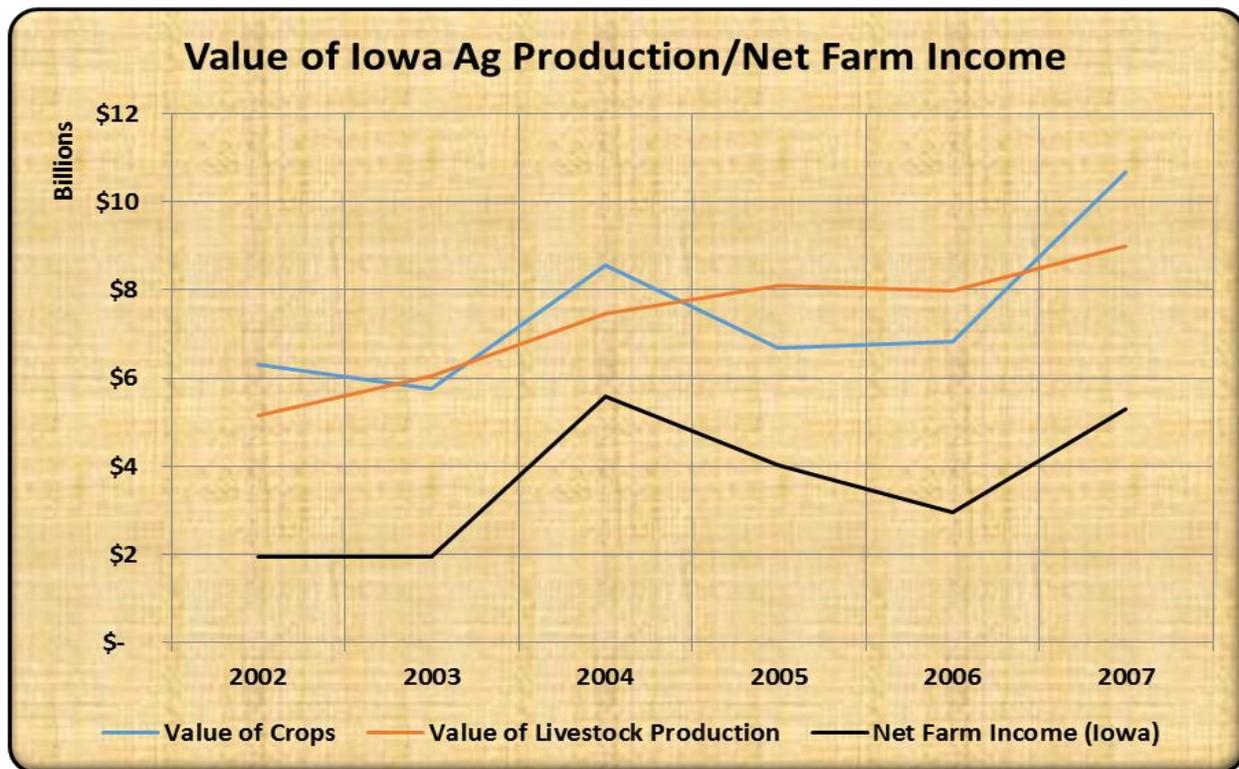


Figure 3, Value of Iowa Ag Production/Net Farm Income

### Share of Gross State Product (GSP) Derived from Ag Production and Food Manufacturing

In addition to the knowledge that net farm income in Iowa has shown strong increases recently, a comparison among other Midwestern states is also instructive. In an effort to standardize a comparison of net farm income across states, data from the Bureau of Economic Analysis (BEA) were used to show the relative *share* of GSP derived from Ag production and food manufacturing<sup>6</sup>. Figure 4 shows historical figures from 1997-2007 for twelve Midwestern states. As shown, Iowa's share of GSP derived from Ag production and food manufacturing has fluctuated from a high of 11.01 percent in 1997 to a low of 7.20 percent in 2006.

<sup>6</sup> Gross Domestic Product by State: <http://www.bea.gov>

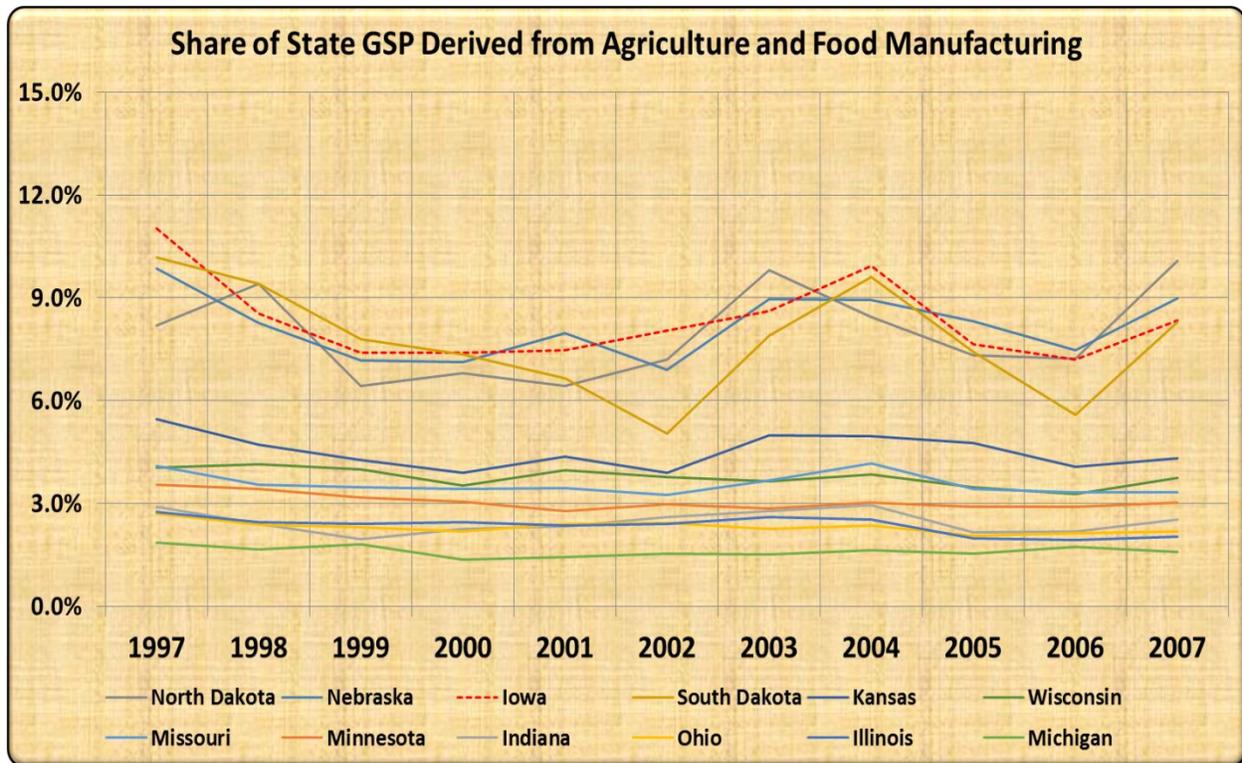


Figure 4, Share of State GDP Derived from Ag Production and Food Manufacturing

In Iowa, ag production generated 4.53 percent of GSP in 2007 for the third highest proportion in the nation. Food manufacturing generated 3.82 percent of Iowa’s 2007 GSP, which was the second highest share in the nation. Together, ag production and food manufacturing generated 8.35 percent of Iowa’s GSP, which was the third highest share nationwide. For comparison to other U.S. regions, Appendix B shows 2007 data for all states.

Compared to total ag production and food manufacturing data from 2002, Iowa’s national ranking has dropped from first in 2002, but has gained as a relative share of Iowa GSP, when the share was at 8.05 percent. However, both North Dakota and Nebraska now have a higher share (10.07 percent and 8.98 percent, respectively) of their GSP derived from ag production and food manufacturing. The Midwestern state with the lowest share of GSP derived from ag production and food manufacturing is Michigan, where the figure was at 1.6% in 2007. While these statistics indicate that Iowa was not the third largest producer of raw ag commodities and processed food in the nation, they do show that Iowa had the third largest proportion of any state’s economic product directly generated through the production and manufacturing of food during 2007.

The stable nature of the share of Iowa’s ag production and food manufacturing has been manifest concurrently with rapid growth in non-agricultural sectors of the economy. During the years 2002-2007, many other industries in Iowa grew at substantial rates (i.e., Management of Companies and Enterprises (130%), Finance and Insurance (94%), Rail Transportation (74%), Natural Resources and Mining (70%), and Information, Communication, and Technology (70%).

## Corn, Soybeans, Cattle, and Hogs

Corn, soybeans, cattle, and hogs dominate Iowa production of primary agricultural commodities. Table 3 shows that these four commodities consistently account for 90 percent of Iowa farm marketing receipts. In 2007, Iowa was the first or second ranked state in the sale of corn, soybeans, and hogs and was the fourth ranked state in the sale of cattle. In 2007 Iowa produced over one-fourth of the hogs and the corn sold in the United States and nearly one-sixth of the soybeans. Iowa is consistently the third largest producer of agricultural commodities (by value of market receipts), following California and Texas. The consistency of Iowa's state-level ranking shows that Iowa's production of basic commodities maintains a relatively constant level from year to year. Because of Iowa's large share of the nation's totals in many categories, what happens in Iowa from year to year can have implications for the nation as a whole.

	% of 2007 total	2007	% of 2002 total	2002	% of 1997 total	1997
<b>Total Sales (\$1,000)</b>	<b>100.0%</b>	<b>\$ 20,418,096</b>	<b>100.0%</b>	<b>\$ 12,273,634</b>	<b>100.0%</b>	<b>\$ 12,162,165</b>
<b>Average per Farm</b>		<b>\$ 219,890</b>		<b>\$ 135,388</b>		<b>\$ 125,766</b>
<b>Grains, Oilseeds, Dry Beans, and Dry Peas (\$1,000)</b>	<b>49.6%</b>	<b>\$ 10,123,033</b>	<b>47.7%</b>	<b>\$ 5,858,528</b>	<b>49.4%</b>	<b>\$ 6,011,171</b>
<b>Livestock, Poultry, and Their Products (\$1,000)</b>	<b>49.3%</b>	<b>\$ 10,074,511</b>	<b>50.5%</b>	<b>\$ 6,202,362</b>	<b>47.4%</b>	<b>\$ 5,760,625</b>
<b>Poultry and Eggs (\$1,000)</b>	<b>4.3%</b>	<b>\$ 872,263</b>	<b>4.2%</b>	<b>\$ 511,949</b>	<b>3.4%</b>	<b>\$ 414,429</b>
<b>Cattle and Calves (\$1,000)</b>	<b>17.7%</b>	<b>\$ 3,606,633</b>	<b>17.3%</b>	<b>\$ 2,119,935</b>	<b>15.2%</b>	<b>\$ 1,850,796</b>
<b>Milk and Other Dairy Products from Cows (\$1,000)</b>	<b>3.4%</b>	<b>\$ 689,680</b>	<b>3.6%</b>	<b>\$ 442,431</b>	<b>3.4%</b>	<b>\$ 408,694</b>
<b>Hogs and Pigs (\$1,000)</b>	<b>23.6%</b>	<b>\$ 4,827,224</b>	<b>25.1%</b>	<b>\$ 3,078,455</b>	<b>24.9%</b>	<b>\$ 3,029,972</b>
<b>Sheep, Goats, and Their Products (\$1,000)</b>	<b>0.2%</b>	<b>\$ 40,199</b>	<b>0.2%</b>	<b>\$ 23,366</b>	<b>0.2%</b>	<b>\$ 30,214</b>
<b>Other Livestock (\$1,000)</b>	<b>0.1%</b>	<b>\$ 12,681</b>	<b>0.1%</b>	<b>\$ 13,643</b>	<b>0.2%</b>	<b>\$ 26,520</b>

**Table 3, Iowa Farm Sales by Source**

## Methodology

To allow for a comparison to the original (2002) Iowa Ag Economic Contribution Study completed in 2005, the same methodology<sup>7</sup> was utilized for this study to the fullest extent possible. As with the original study completed by Iowa State University, several data sources and software were used to estimate what ag and ag-related industries contribute to each of Iowa's 100 study areas: 99 counties and the state as a whole.

As was elaborated upon in 2005 (Imerman et al.), because of blurred lines between production agriculture, processing, and retail, there can be considerable discussion (and often disagreement) regarding how agriculture should be appropriately defined. Agriculture, or the agri-food system, is variously defined as including only farm-level production; as including farm-level production, input manufacturing, and food processing; or, from the gate-to-plate perspective, which would include all of this plus processed agricultural product distribution and retailing. Because of the ability of commodities to easily be produced in one state and processed and/or manufactured in another, these distinctions can be complicated by questions of which values and activities should properly be credited to the subject-area economy.

While there is room for discussion as to what rightly should and should not be included as parts of the agri-food sector, there are few arguments that its inclusion should be strictly limited to farming or primary commodity production. This is because in its most basic form, the agri-food system depends upon activities that produce primary agricultural commodities, which takes place at the farm level.

The "gate-to-plate" definition of the agri-food system opens the door to questions of both scope and identification. Discussions regarding the scope of the definition of the agri-food system break down into two basic issues:

1. To what point are these activities driven by agriculture? In other words, at what point are the activities more appropriately tied to the consumer or resident population?
2. What portion of the individual activities is actually agriculture-related?

With respect to the first of these issues, in general, basic food processing takes place close to production. Grain milling and livestock slaughter reduce the size of the commodity packages that must be shipped from producer to consumer. Where different components of the commodity are bound for different consumer populations, basic processing also allows those shipments to take place independently of each other. Both of these factors reduce cost and increase value to the consumer.

Final food processing, however, is more likely to take place near the point of final consumption. Up until the last half of the 20th Century, most final food processing actually took place in the household kitchen. These activities take place close to the consumer for a number of reasons. First, final processing generally reduces portions and increases packaging in terms of both weight and volume, increasing

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<sup>7</sup> Much of the description of methodology and justification for utilizing the same is borrowed from the original report produced by Iowa State University in 2005. ([http://www2.econ.iastate.edu/outreach/agriculture/agri-food/State\\_Report.pdf](http://www2.econ.iastate.edu/outreach/agriculture/agri-food/State_Report.pdf))

shipping costs. Second, final processing often accelerates perishability, reducing shelf life and, again, increasing shipping costs. Finally, the final product of the process is often tailored to local or regional consumer preferences. All of these factors tend to move final processing from production centers to consumer centers. Any delineation of scope will have to address the logic of justifying where in this chain of events do activities change from being agriculture production-driven to being consumer-driven. The broader the delineation of scope, the more this discussion comes under scrutiny. There is no simple right or wrong answer to this question.

The closer to the consumer that we get with this first issue of scope, the more important it becomes to deal with the second issue. Among the food products in modern grocery stores are aisles of paper and plastic products, household cleaners, and personal care products. There are often photo finishing and shipping services, banking, and personal services. While the sale of food makes up the bulk of the total sales in these establishments, thereby assuring establishment classification as a grocer for statistical reporting purposes, a disproportionate share of the margins or profits generated are actually non-food in nature. This is because food retailing is a low-margin business. The extent to which these activities are directly related to the production and processing of agricultural commodities is an open question. Whether the division of these activities should be by volume, by value, by margin, or by some other parameter is also unresolved.

Even if these issues could be reconciled, there is no clear way to separate these within-firm activities using official statistics on either the national or local levels. Resolving the scope issue, in this case, would only lead to another major obstacle to the analysis. As a result, this issue is generally dealt within an all-or-nothing manner if it is dealt with at all.

These are all questions of scope – how do we define the activities that are included under the umbrella of the agri-food system, in general, and in the context of specifically identified geographic areas and inquiries. Once scope is defined, a study must deal with the issue of identification, or how to identify relevant activities and estimate their value using the available statistics. While identifying and measuring activities would seem to be a simple task once scope is defined, the activities included in any definition of the agri-food system extending beyond basic agricultural production are intermingled with other industries in most state and federal statistics. Production agriculture, itself, has generally been reasonably separable in reported statistics (where such statistics exist), but much of production agriculture is exempt from reporting under employment security law (payroll tax), and much of agricultural production is marketed on a time-frame (i.e., crop year) that does not match standard reporting periods for other industries. This leaves large gray areas in the data stream, even where identification would not otherwise be a major problem.

In general, issues of scope get continually more contentious as we move into post-processing distribution and retail sales. In the discussion that follows, the IMPLAN input-output model will be used to look at a definition of the agri-food sector that runs from input manufacturing through food processing and how the definition of the agri-food sector explained contributes to a local economy.

## 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”, which attempts to understand the economic impacts of a change within an economy (i.e., a business/industry entering or leaving a local area). 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.

Instead of conducting an economic impact study in the traditional sense, the 2007 data which underlie the IMPLAN modeling system<sup>8</sup> were used to create an agri-food centric aggregation of the economy of each study area. In other words, data within the IMPLAN modeling system were used to estimate the composition of industry output (sales) throughout the economy and to credit the production of that output to various industries, factors of production, regions, or populations. It is important to note that the actual IMPLAN software was not used to conduct this analysis. Instead, data were extracted for external analysis from the annually-updated IMPLAN database. In so doing, re-aggregated data clearly link all agriculture and agri-food sector industries in Iowa (and each county as appropriate) in a manner which maintained all of their original production relationships (production function).

While the details of a working Input-Output (I-O) model can be complex, conceptually, an I-O model is quite simple. An I-O model is basically a matrix of economic sectors. Sectors along one axis represent suppliers of inputs to the industries on the other axis, which represent industrial users or demanders. Suppliers and demanders are connected by an interlocking set of mathematical relationships specifying how much of each input is required to make a unit of any output. When an industry decides how much final output it will produce, the model specifies how much of all necessary inputs are required.

Conceptually, an I-O matrix starts out looking like the large system of mileage charts (similar to those that you find in the back of a road atlas). Unlike the numbers in a mileage chart, however, each of the cells in an I-O model contains part of a system of production functions that is mathematically-linked to all of the other cells in the model. The values of goods supplied or demanded can be changed for any of the industrial cells and the matrix system can be rebalanced, showing how that initial change affects all of the industries that supply inputs to or demand outputs from the industry altered.

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<sup>8</sup> IMPLAN is a generalized social accounting system that tracks the purchases and sales of commodities between industries, businesses and consumers. ([www.implan.com](http://www.implan.com))

### **Methods of Economic Contribution Analysis**

There are two primary methods for utilizing the IMPLAN modeling system for conducting an analysis of this type: 1) Industry-Only and 2) Production Process by Industry of Final Sale (Production Process). Both methods have merits, but as discussed below, the majority of analysis comprised in this report is conducted from a Production Process perspective.

#### ***Industry-Only***

The industry only method relies upon data exported from the IMPLAN modeling system which is then summarized according to any number of aggregation schemes. The analysis is a straightforward process. However, in 2005 this method of analysis yields results quite similar to those from the BEA presented earlier, especially as they relate to value-added estimates. Given that IMPLAN data are heavily reliant upon BEA labor statistics, this was not a surprising outcome. Because the expectation was that the industry only analysis would again yield results similar to that presented earlier, inclusion of an industry only analysis has not been performed.

#### ***Production Process by Industry of Final Sale***

The production-process method allocates all local (dependent on study area) in-state production that enters any industry's input-stream to that industry's final output. In this accounting, the output of an industry is counted for that industry only if it is at its final stage of production within Iowa or if the study area is a particular county, to that county. Perspective is gained by aggregating the Output and Value-added of Iowa-produced-and-used intermediate inputs into the results of the industry of final export from or consumption within Iowa. This gives a product valuation of output by industry where an industry's final values include all Iowa-produced input values. By doing this we show the total value of Iowa production that is driven by the final output of Iowa industries. This will increase the values of industries that use proportionately more Iowa inputs, because the values of those inputs are aggregated into these industries.

As additional context, any output that is subsequently used as an input in another industry within Iowa is aggregated into the industry of final processing within the state. As an example, if the meat packing industry purchases all of its live cattle from Iowa farmers, the output value, value-added, and personal income generated in the production of those cattle is aggregated up to the meat packing industry. Similarly, the value of farm machinery purchased for use on Iowa farms is not included in the aggregation under farm machinery, but is included under agricultural production (and partially included, again, into food processing if the farm output that it was used to produce passes through Iowa-based food processors on its journey to its final processed form within the state). In a nutshell, the employment, output, value-added, and income estimates in the production-process method estimate the total share of the Iowa economic activity utilized to generate final output from the agri-food sectors (or any of the other listed sectors).

In addition to drawing Iowa-produced input values into the industry of final output, the production process method removes Iowa-produced goods consumed by domestic households from the Output, Income, Value-added, and Employment totals by industry and presents them separately. This is a partial reflection of economic base theory, which holds that the impact or value of a regional economy is

reflected by the ability of that economy to produce beyond its needs (export). Economic base theory holds that the means to strengthen and grow a local economy is to strengthen the industrial sectors that have the ability to sell locally produced goods into the non-local market.

Strict interpretations of economic base theory would omit local government demand and local investment (capital and inventory) as well as local household consumption from the valuation of an industry's contribution to the economy. The scenario used in this analysis is less strict, interpreting local government expenditures and investment as increases in the local economy's capacity to produce goods in the future, just as the income streams from exports increase the regional economy's capacity. The agri-food sector utilizes a substantial proportion of local inputs in its production processes. Because this aggregation pulls local inputs into the totals of the industry of final local production, this increases the totals in sectors like agri-food, which use a relatively high proportion of local inputs.

### **Industrial Aggregation within the IMPLAN Modeling System**

The IMPLAN modeling system uses the nearly 21,000 industries identified and classified according to North American Industry Classification System (NAICS) and groups them into 440. To better understand the structure of the agri-food industry as well as how it compares to other Iowa industries, these 440 industries were further aggregated in two ways: 1) Detailed Agricultural Sector Analysis and 2) Aggregated Agricultural and Other Sector Analysis. Details of the methods of aggregation follow.

#### **Detailed Agricultural Sector Analysis**

To provide comparable figures to the 2005 study, the same aggregation was used. Complete documentation regarding this method of aggregation can be found in Appendix C. This method of aggregation was used for all study areas (county and state levels). Industries not classified as one of the sixteen listed below are classified as "non-ag industries" for this analysis. Of note, this method of aggregation does not include the food distribution or retailing system as a component of the agri-food industry for reasons described earlier.

Because the IMPLAN modeling system reduces the NAICS codes to just 440, some industries present in the NAICS data are necessarily aggregated with similar industries. As an example, egg laying hens and turkeys are both included in the "Poultry" IMPLAN sector<sup>9</sup>. However, because those interested in having an analysis such as this completed are interested in how the various "sub-poultry" sectors contribute to an economy, data from the 2007 Census of Agriculture were used to adjust IMPLAN data to more accurately reflect what the structure of the agriculture industry looks like. In some cases (primarily poultry and hogs), data from commodity organizations were used to break out the IMPLAN data according to sub-species (i.e., turkeys and egg-laying hens) because census data were too incomplete due to disclosure issues. The detailed agricultural sector analysis method of aggregation includes the following industrial categories:

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<sup>9</sup> Broilers are also included in the "Poultry" IMPLAN sector, but were not broken out due to the overwhelming share of poultry derived from Turkeys and Egg-Laying Hens.

- Oilseeds
- Grains
- Other Crops
- Cattle
- Dairy
- Poultry (Turkeys, Broilers, and Layers)
- Hogs & Other Livestock
- Ag Support
- Primary Food Processing – Crops
- Primary Food Processing – Dairy
- Primary Food Processing – Meat
- Animal and Pet Foods
- Other Food Processing
- Ag Chemical and Fertilizer
- Farm Machinery
- Non-Ag

### Aggregated Agricultural and Other Sector Analysis

Because there are numerous other industries important to Iowa's economy, a second method of aggregation was used. This method of aggregation allows for the comparison of Iowa's agri-food industry to other industries such as Manufacturing, Transportation, and Financial Services, among others. This method of aggregation was not used in the 2005 study and therefore represents new content relative to the original study. Complete documentation regarding this method of aggregation can be found in Appendix D.

Similar to the detailed agricultural sector analysis, this method of aggregation was used for all study areas (county and state levels). Of note, this method of aggregation does not include the food distribution or retailing system as a component of the agri-food industry for reasons described earlier. Further, the issue of IMPLAN grouping similar sectors (i.e., turkeys and egg-laying hens into a "Poultry" sector) is not an issue since all livestock sectors are grouped into an aggregated classification known as "livestock". The aggregated agricultural and other sector analysis method of aggregation includes the following industrial categories:

- Crops
- Livestock
- Other Ag
- Mining
- Utilities
- Construction
- Manufacturing
- Wholesale
- Retail
- Transportation
- Information
- Financial
- Services
- Entertainment
- Government
- Remainder

## Results

For both the detailed agricultural sector analysis and the aggregated agricultural and other sector analysis, a reiteration of why some of the economic contribution results may be more or less than is expected is helpful. By utilizing a “production process” modeling approach to this analysis, the movement of commodity output at lower levels into production or processing at higher levels results in some individual segment totals with more or less than expected contribution levels. This is particularly true in the meat production industry, where a very high proportion of livestock output goes directly into the Iowa meat processing industry, moving the value of that output from the agricultural production to the food processing industries. In the figures and tables that accompany this section of the report, one will notice how the “Primary Food Processing” industries (crops, meat, and dairy) comprise the majority of all ag-based contributions. Therefore, one should look at the combination of those industries which form to make a whole (i.e., all livestock industries plus those which process livestock).

### Detailed Agricultural Sector Analysis

Results for the detailed agricultural sector analysis yielded some interesting points worthy of mention. Iowa agriculture is critical to Iowa, and is tightly linked to Iowa’s many other industries. As described in the Methodology section, the detailed agricultural sector analysis provided for a detailed look at what specific portions of the ag and ag-related industries contribute to both county and state level economies. Results regarding the contribution of agriculture in terms of Output, Jobs, Income, and Value-added follows.

### Output Contributions

“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 any deductions for the cost or origination of inputs that were used in the production process. Figures 5-7 illustrate the contribution in terms of the contribution of Iowa’s ag and ag-related industries to the state. These figures illustrate the contribution in terms of the share of the economy. In addition to the shares identified in Figures 5-7, actual numbers can also be found in Table 4. As shown in Figures 5-7, Iowa’s ag and ag-related industries substantially contribute to Iowa’s economy. A combination of Crops, Livestock, and Other Ag contribute nearly 26.8 percent of Iowa’s total output. Of this 26.8 percent, 9.0 percent came from crop industries<sup>10</sup>, 10.4 percent from livestock Industries, and 7.4 percent from other ag industries.

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<sup>10</sup> For illustrative purposes, Crop Industries include all crop industries and those which process commodities. Similarly, Livestock Industries include all livestock industries and those industries which process livestock products.

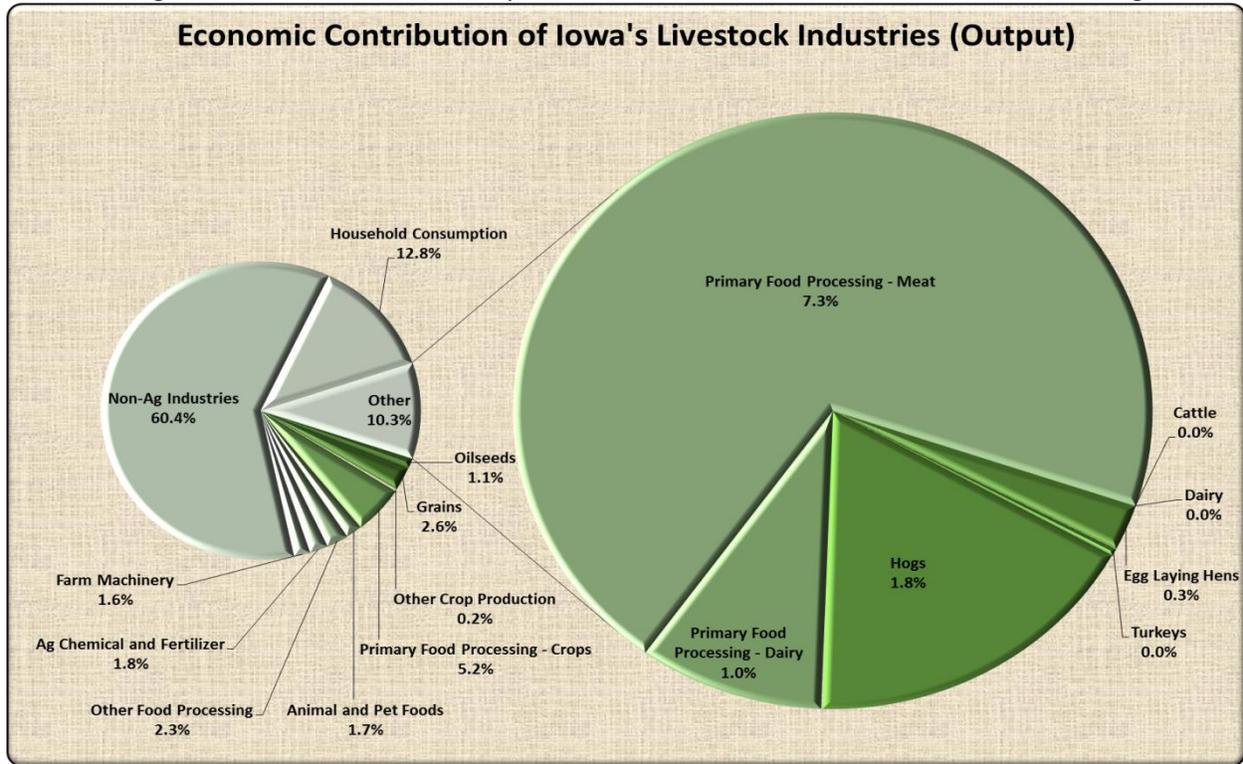


Figure 5, Economic Contribution of Iowa's Livestock Industries (Output)

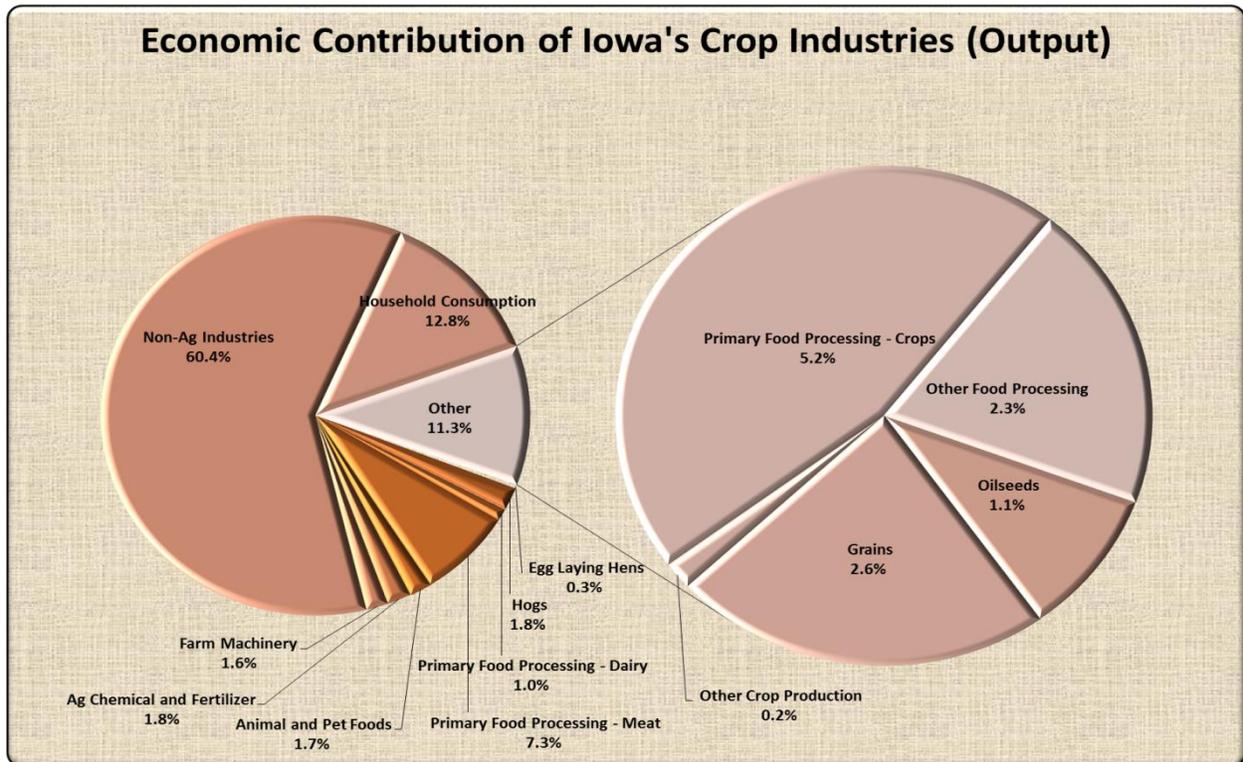
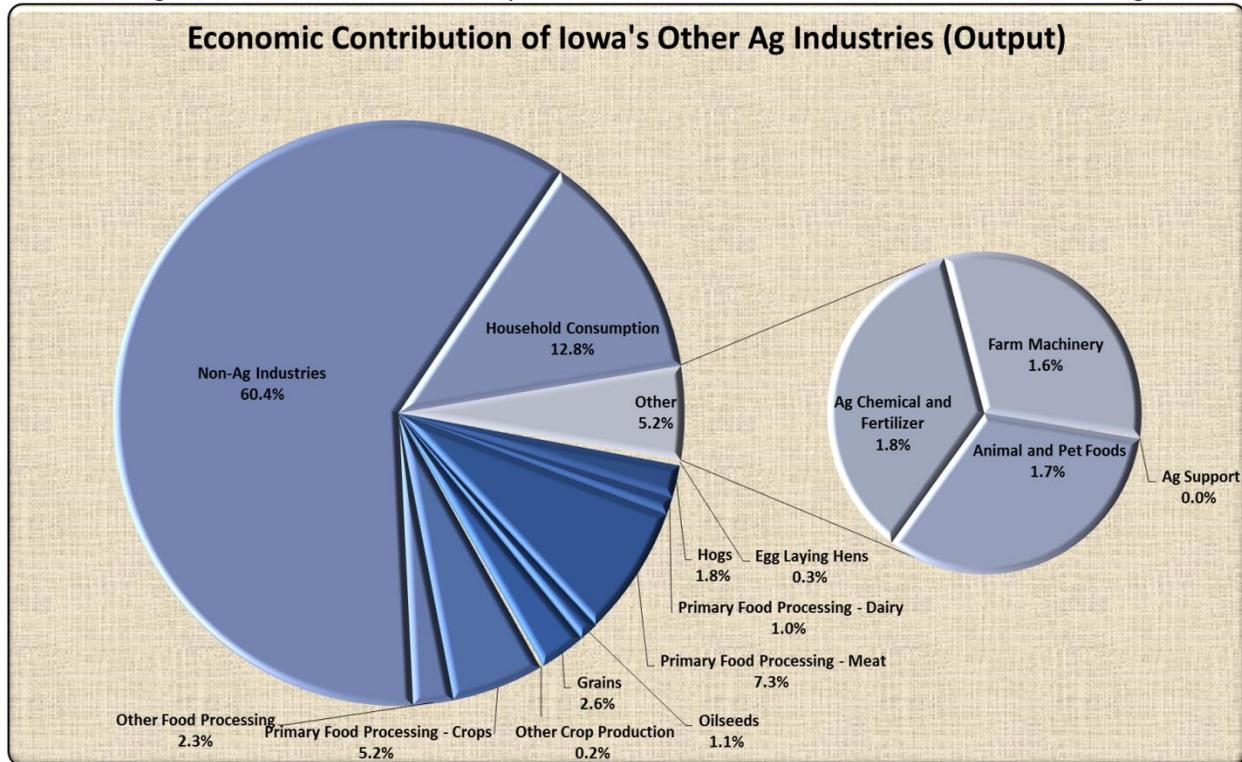


Figure 6, Economic Contribution of Iowa's Crop Industries (Output)



**Figure 7, Economic Contribution of Iowa's Other Ag Industries (Output)**

### Jobs Contributions

“Jobs<sup>11</sup>” represents an estimate of the number of positions (jobs) currently filled in an area and/or industry. The estimates provided here originate with the databases of the IMPLAN input-output model. “Jobs” counts positions whether they are full-time 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 “Agricultural production” or “Agri-food sector”) the number is an estimate of the number of jobs filled within that industry in the area specified.

Figures 8-10 illustrate the contribution of Iowa’s ag and ag-related industries to the state in terms of total jobs. In addition to the shares identified in Figures 8-10, actual numbers can also be found in Table 4. As shown in Figures 8-10, Iowa’s ag and ag-related industries substantially contribute to Iowa’s total jobs. A combination of Crops, Livestock, and Other Ag support one in six (16.5 percent) of Iowa’s total jobs. Of this 16.5 percent, 6.0 percent came from crop industries, 6.6 percent from livestock Industries, and 3.9 percent from other ag industries.

<sup>11</sup> Jobs 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 location. Comparisons of wages and compensation are more appropriate in an economic value context.

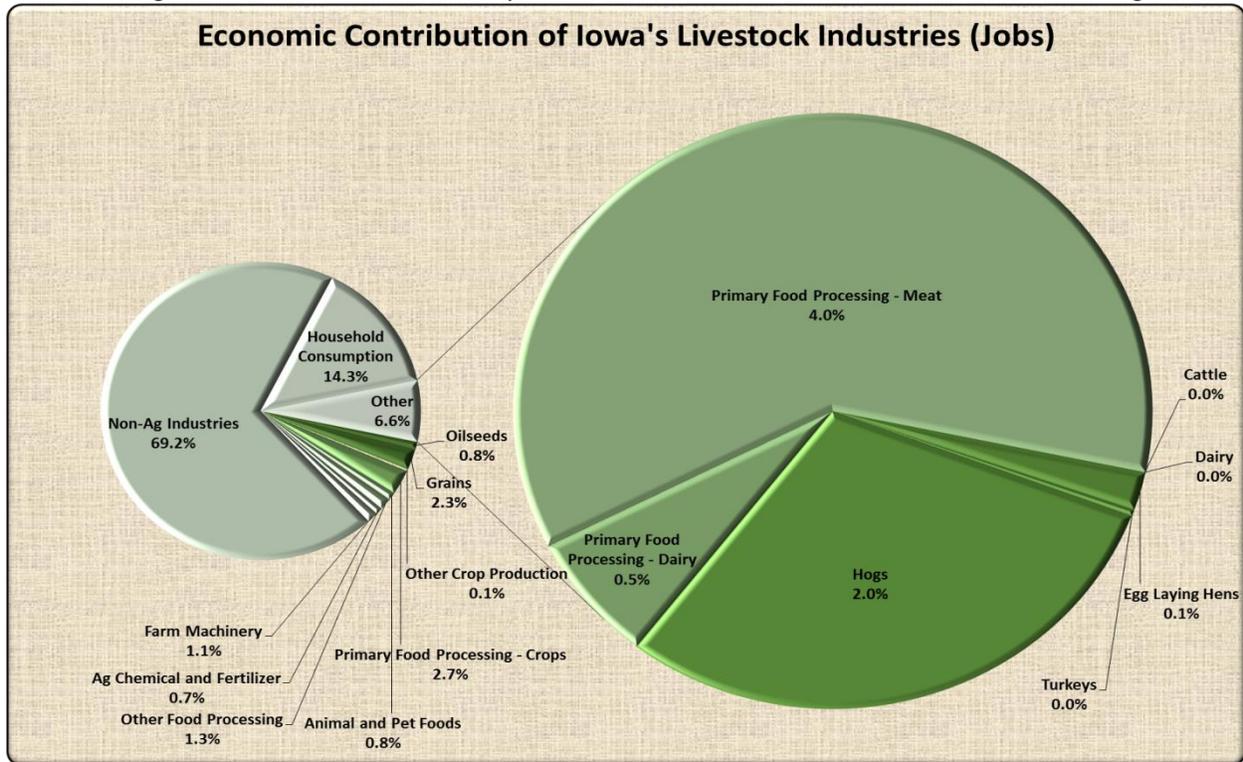


Figure 8, Economic Contribution of Iowa's Livestock Industries (Jobs)

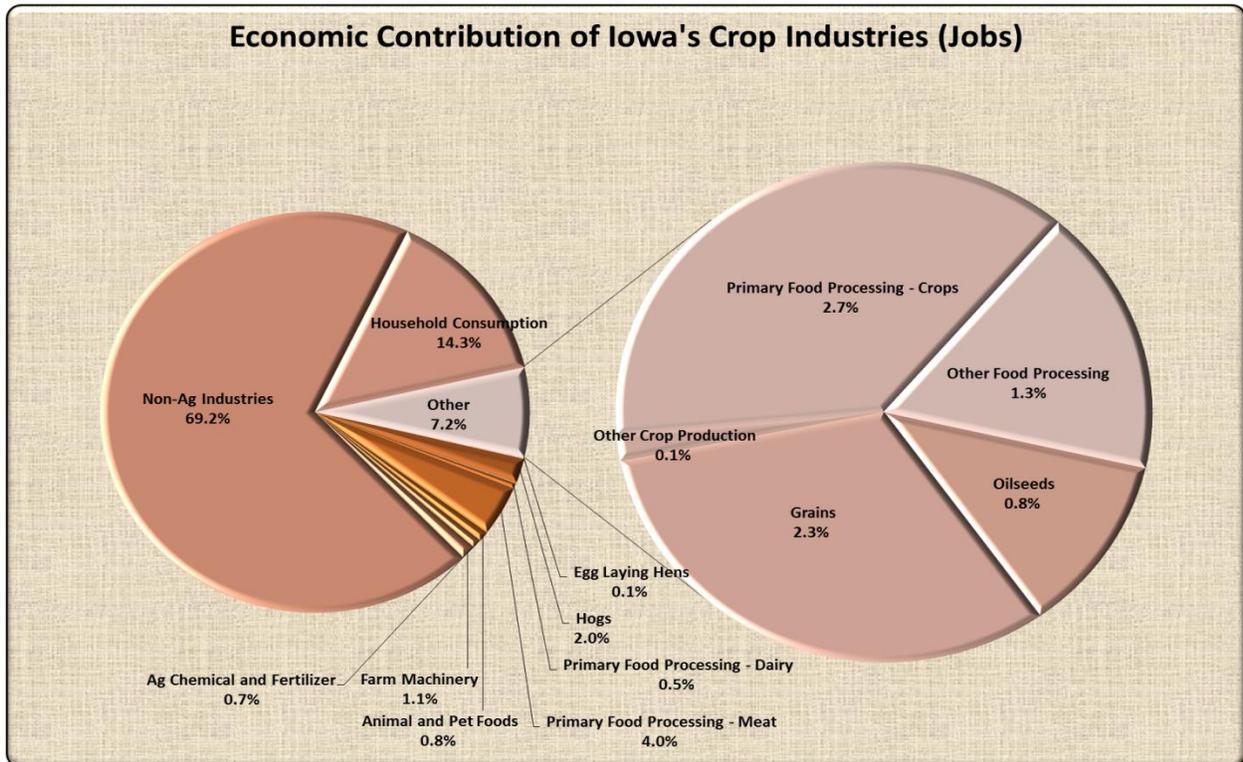
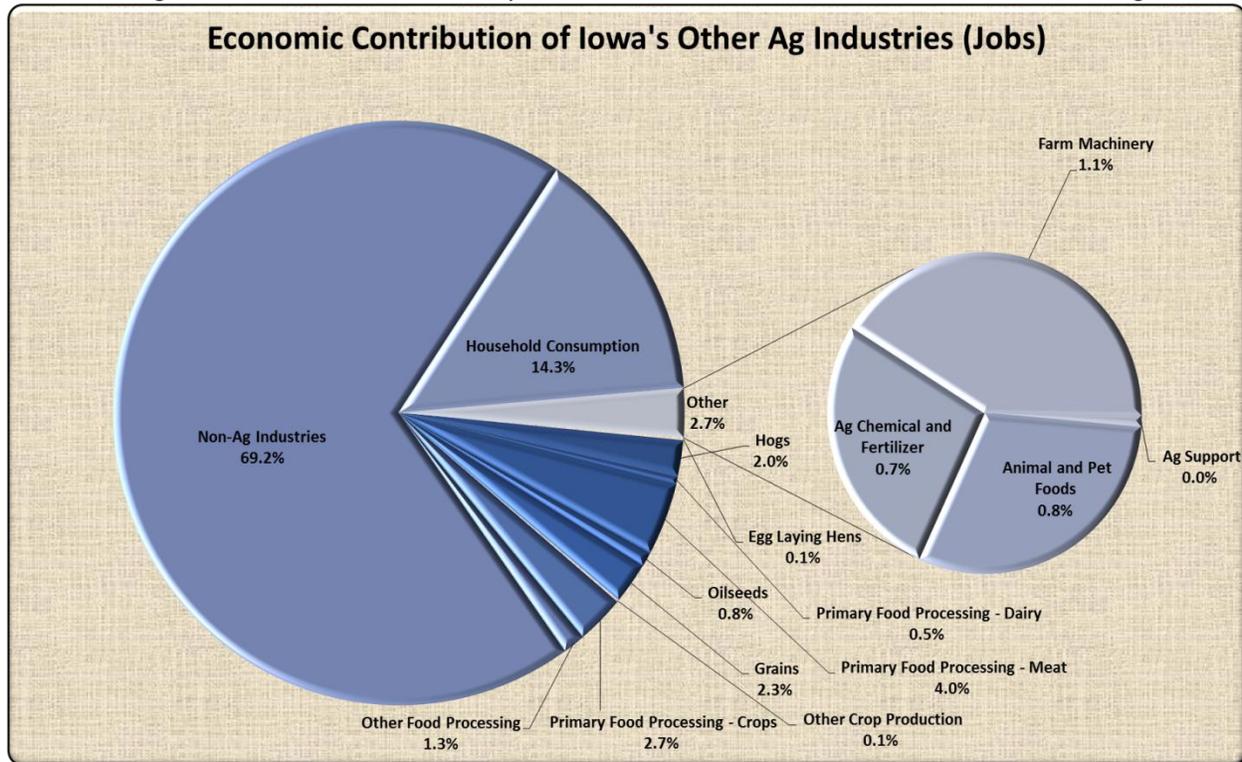


Figure 9, Economic Contribution of Iowa's Crop Industries (Jobs)



**Figure 10, Economic Contribution of Iowa's Other Ag Industries (Jobs)**

### Value-Added Contributions

“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 area (industry) represents the value of the area’s (industry’s) total output minus the value of any inputs into the production process that were imported from other areas (industries). Key components of value-added are employee compensation (hired labor) and proprietor’s income (self-employed), which collectively is called “labor income”.

Figures 11-13 illustrate the contribution of Iowa’s ag and ag-related industries to the state in terms of total value-added. In addition to the shares identified in Figures 11-13, actual numbers can also be found in Table 4. As shown in Figures 11-13, Iowa’s ag and ag-related industries substantially contribute to Iowa’s total value-added. A combination of Crops, Livestock, and Other Ag support nearly one in five (18.8 percent) of every dollar of value-added generated in the State of Iowa. Of this 18.8 percent, 6.6 percent from crop industries, 6.7 percent came from livestock Industries, and 5.5 percent from other ag industries.

In this representation, household consumption is treated as its own industry, and all production feeding local household demand is aggregated to household demand. Iowa economic production supporting this household demand generated 14.0 percent of Iowa Value-added, making household demand a major individual industry in its own right. Part of this 14.0 percent, however, is final household demand sourced from the agri-food sector. Removing household demand driven production from the agri-food sector industries and retaining it in the total Iowa economy understates the total agri-food production share of total Iowa value-added.

Table 4 shows industry-level value-added under this aggregation in three contexts.

1. As a relative share of industry output (a production value yield rate)
2. As a relative share of total Iowa jobs
3. As a relative share of total Iowa Value-added (a share of the economy's overall value)
4. As a relative share of Iowa Value-added net of production driven by Iowa household consumption (a share of Iowa's growth-driving production)

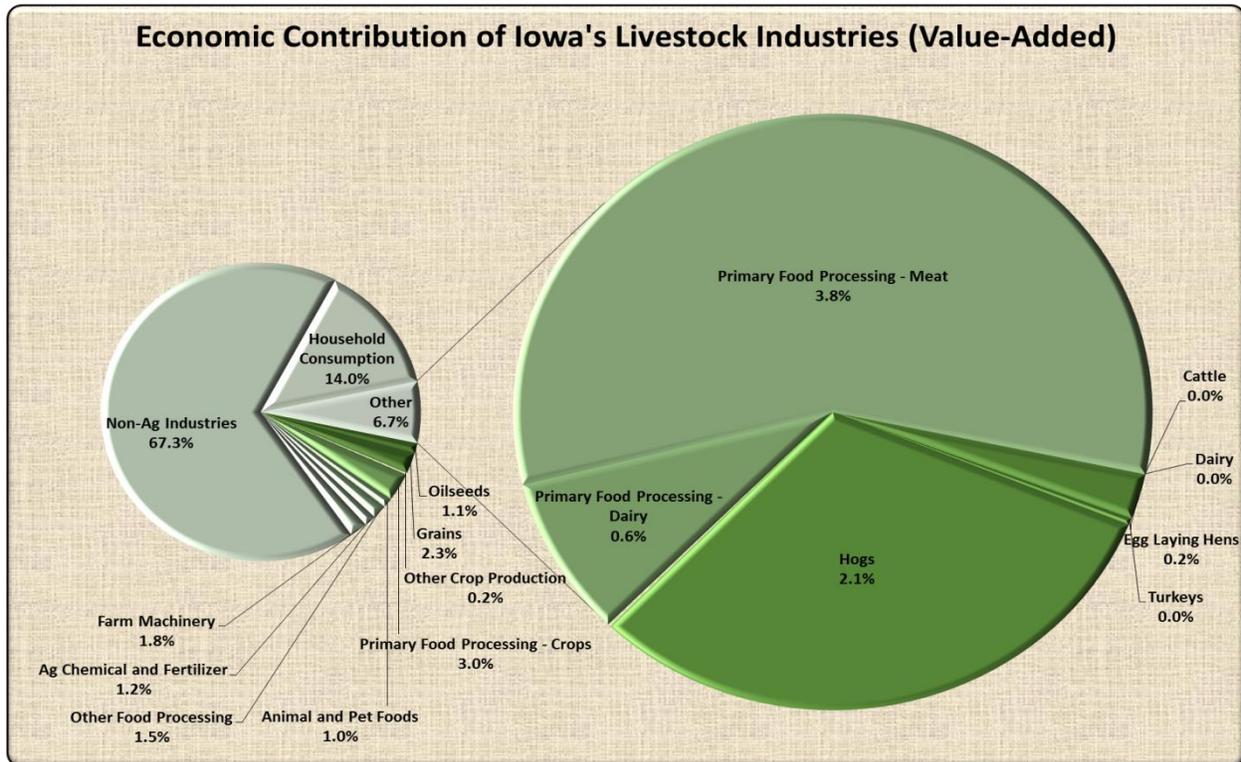


Figure 11, Economic Contribution of Iowa's Livestock Industries (Value-Added)

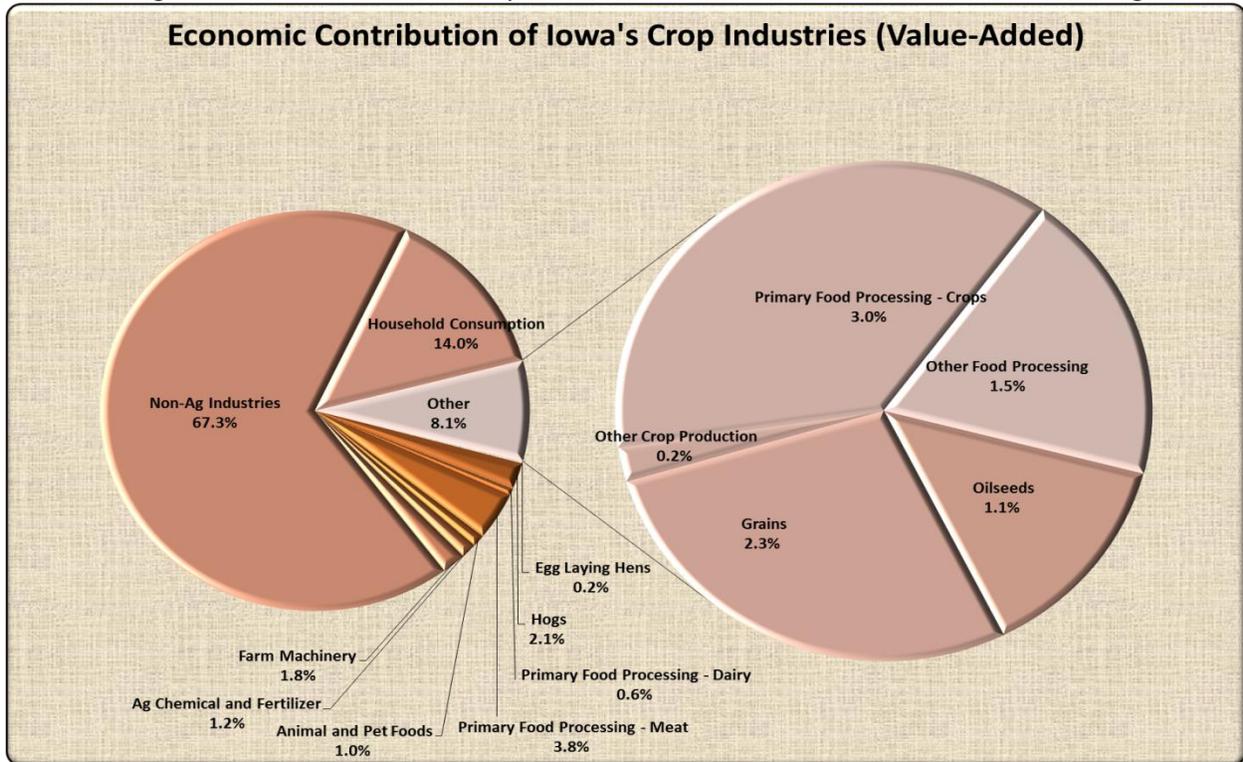


Figure 12, Economic Contribution of Iowa's Crop Industries (Value-Added)

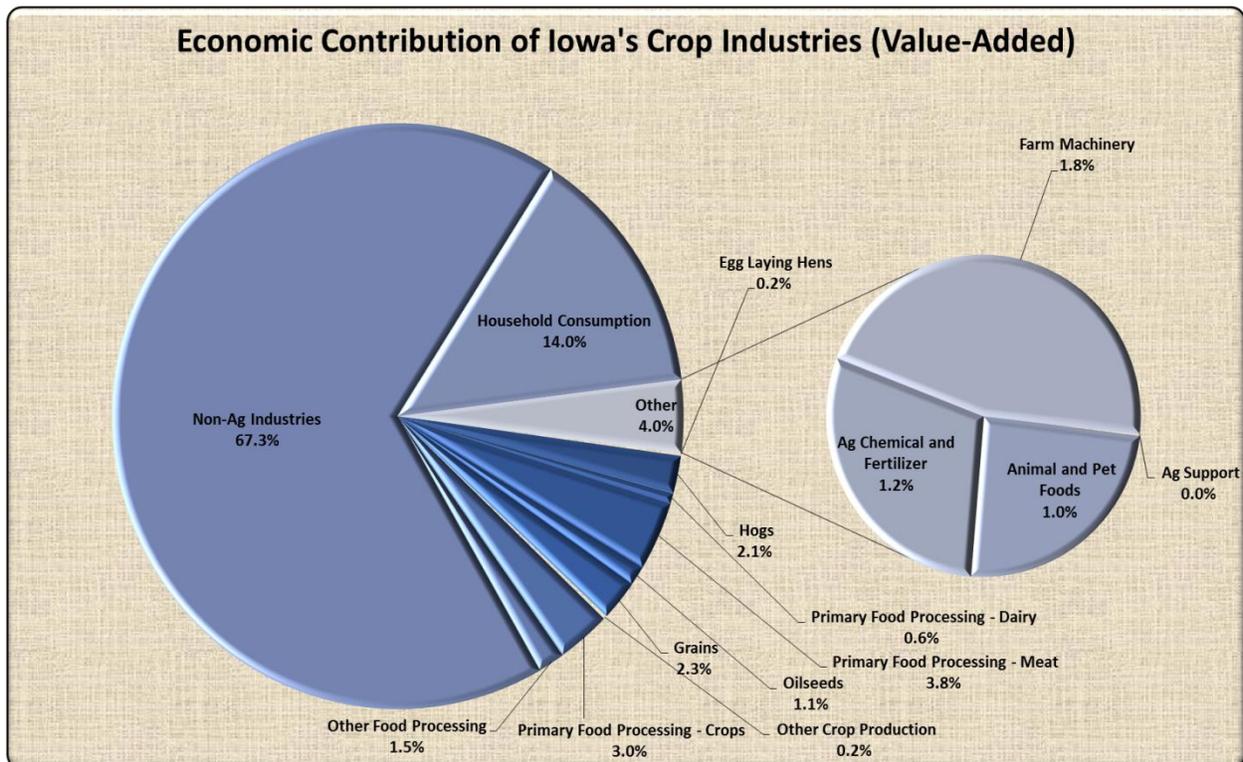


Figure 13, Economic Contribution of Iowa's Other Ag Industries (Value-Added)

**Household Income Contributions**

“Household income” refers to 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).

Figures 14-16 illustrate the contribution in terms of the share of the total household income derived from ag and ag-related industries. In addition to the shares identified in Figures 14-16, actual numbers can also be found in Table 4. As shown in Figures 14-16, Iowa’s ag and ag-related industries substantially contribute to Iowa’s total household income. A combination of Crops, Livestock, and Other Ag support 10.2 percent of total household income generated in the State of Iowa. Of this 10.2 percent 3.5 percent from crop industries, 3.5 percent came from livestock industries, and 3.2 percent from other ag industries.

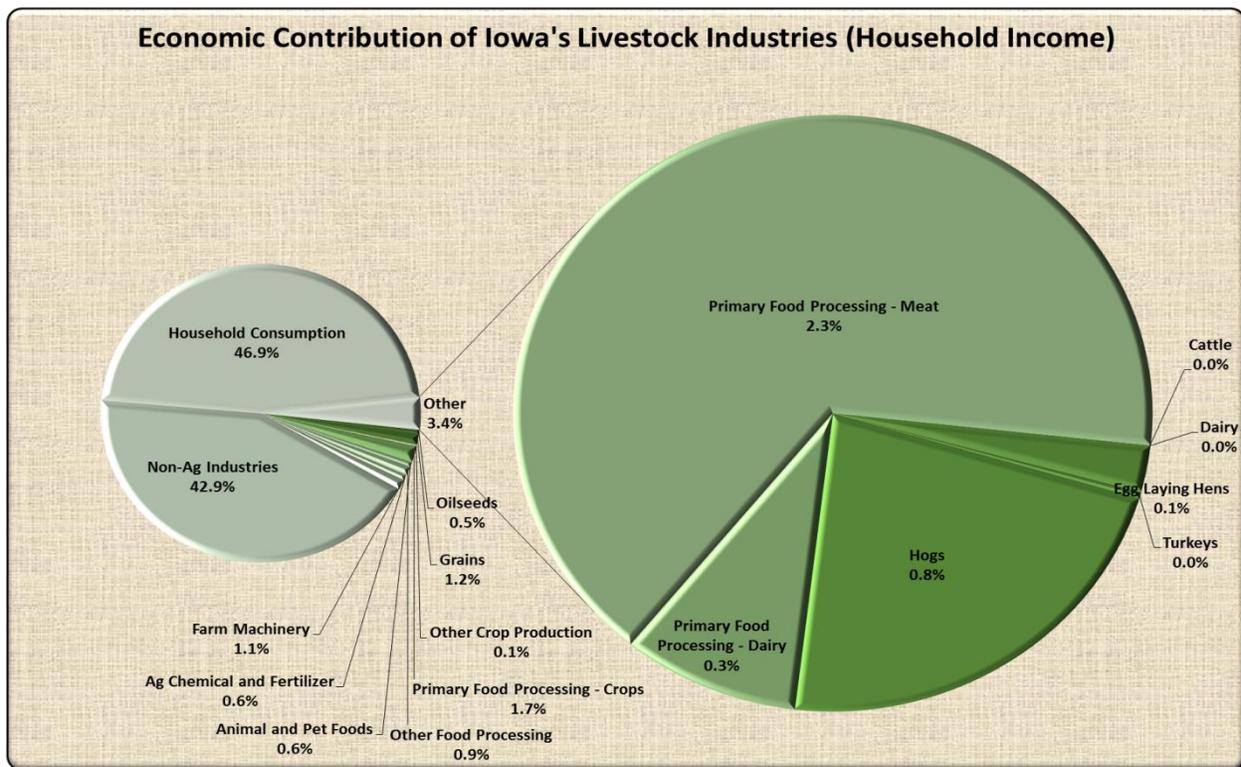


Figure 14, Economic Contribution of Iowa's Livestock Industries (Household Income)

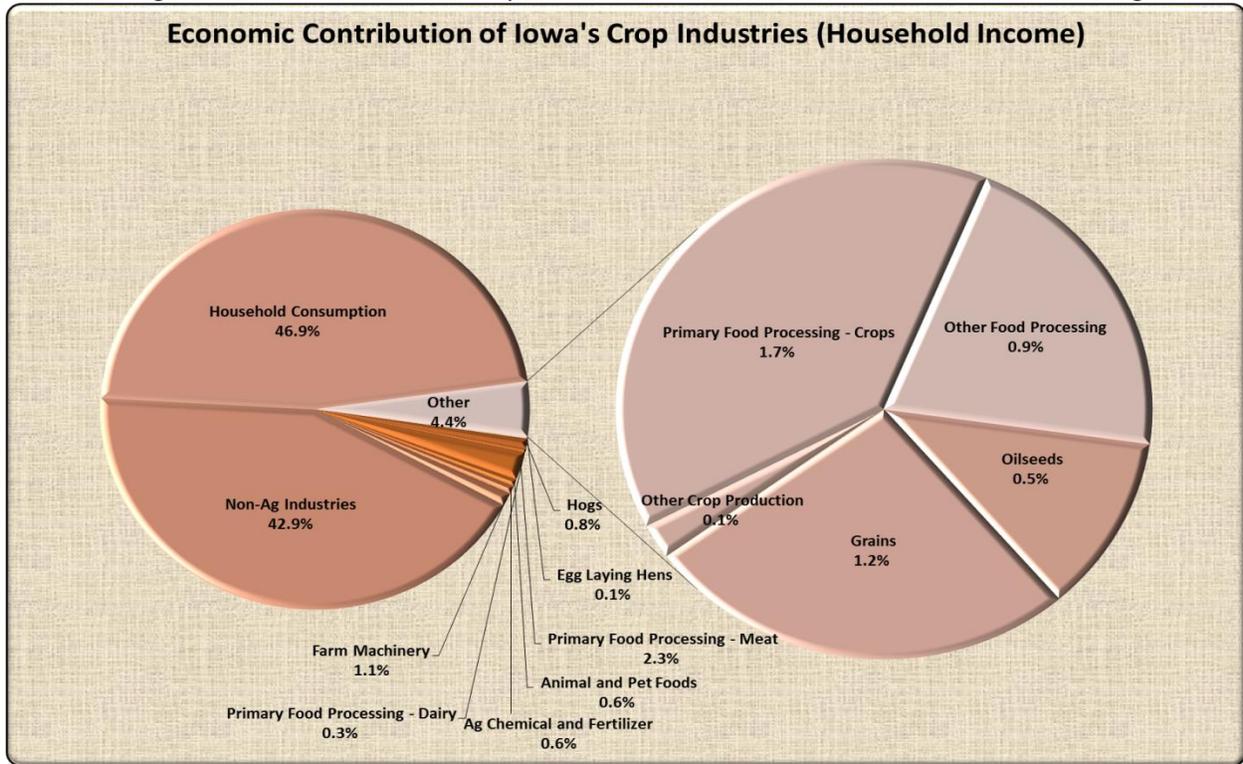


Figure 15, Economic Contribution of Iowa's Crop Industries (Household Income)

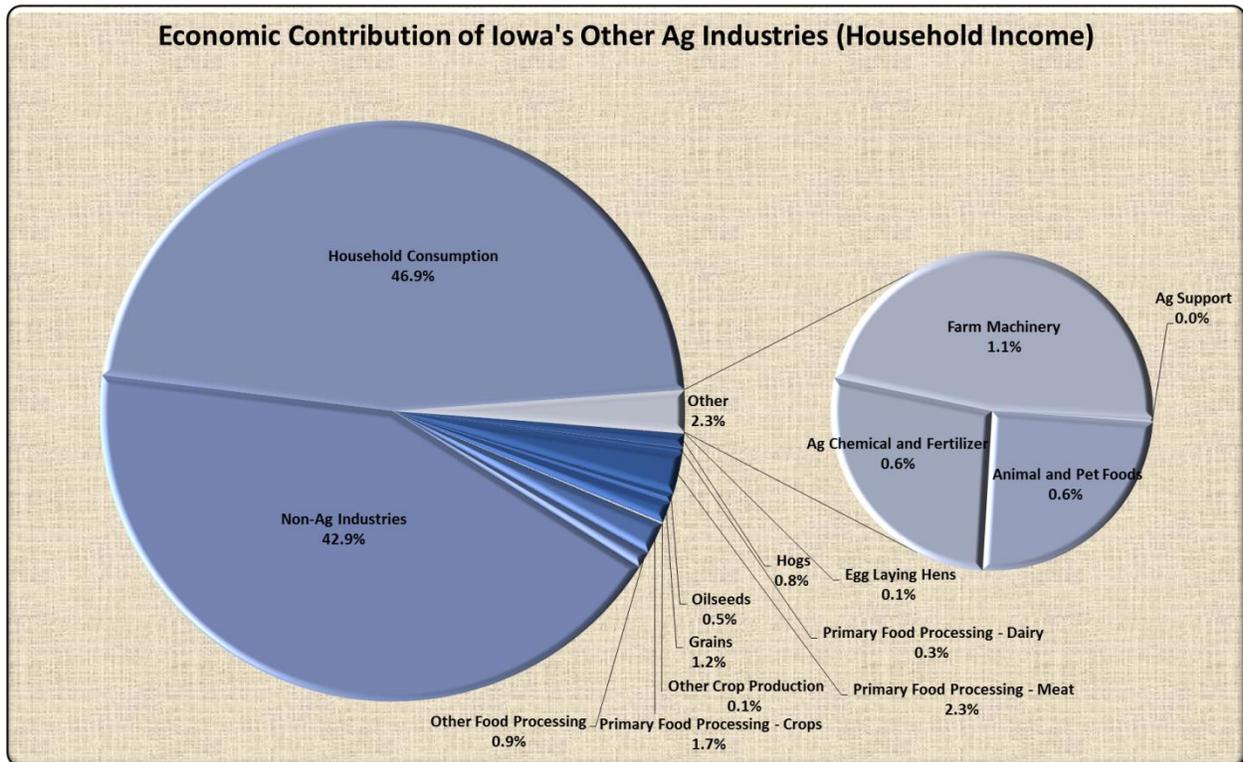


Figure 16, Economic Contribution of Iowa's Other Ag Industries (Household Income)

Industry	Household Income	HH Income (% of Total)	Total Jobs	Total Jobs (% of Total)	Total Output (\$M)	Total Output (% of Total)	Total Value-Added (\$M)	Total VA (% of Total less HH)	Total VA (% of Total)
Oilseeds	\$ 632	0.5%	16,656	0.8%	\$ 2,873	1.1%	\$ 1,333	1.3%	1.1%
Grains	\$ 1,450	1.2%	46,108	2.3%	\$ 6,959	2.6%	\$ 2,737	2.6%	2.3%
Other Crop Production	\$ 123	0.1%	2,429	0.1%	\$ 527	0.2%	\$ 218	0.2%	0.2%
<b>Total Crops</b>	<b>\$ 2,206</b>	<b>1.8%</b>	<b>65,193</b>	<b>3.2%</b>	<b>\$ 10,359</b>	<b>3.9%</b>	<b>\$ 4,288</b>	<b>4.1%</b>	<b>3.5%</b>
Cattle	\$ 2	0.0%	54	0.0%	\$ 13	0.0%	\$ 4	0.0%	0.0%
Dairy	\$ 1	0.0%	25	0.0%	\$ 5	0.0%	\$ 2	0.0%	0.0%
Poultry	\$ 129	0.1%	3,228	0.2%	\$ 820	0.3%	\$ 226	0.2%	0.2%
Layers Value	\$ 110	0.1%	2,767	0.1%	\$ 702	0.3%	\$ 193	0.2%	0.2%
Turkeys Value	\$ 18	0.0%	461	0.0%	\$ 117	0.0%	\$ 32	0.0%	0.0%
Hogs and Other Livestock	\$ 962	0.8%	40,016	2.0%	\$ 4,916	1.8%	\$ 2,555	2.4%	2.1%
Hogs Value	\$ 947	0.8%	39,403	2.0%	\$ 4,841	1.8%	\$ 2,515	2.4%	2.1%
Other Value	\$ 15	0.0%	614	0.0%	\$ 75	0.0%	\$ 39	0.0%	0.0%
<b>Total Livestock</b>	<b>\$ 1,093</b>	<b>0.9%</b>	<b>43,324</b>	<b>2.2%</b>	<b>\$ 5,754</b>	<b>2.1%</b>	<b>\$ 2,786</b>	<b>2.7%</b>	<b>2.3%</b>
<b>Total Ag Production</b>	<b>\$ 3,299</b>	<b>2.7%</b>	<b>108,517</b>	<b>5.4%</b>	<b>\$ 16,113</b>	<b>6.0%</b>	<b>\$ 7,074</b>	<b>6.8%</b>	<b>5.8%</b>
Ag Support	\$ 14	0.0%	532	0.0%	\$ 29	0.0%	\$ 16	0.0%	0.0%
Primary Food Processing - Crops	\$ 2,142	1.7%	54,598	2.7%	\$ 13,898	5.2%	\$ 3,683	3.5%	3.0%
Primary Food Processing - Dairy	\$ 381	0.3%	9,335	0.5%	\$ 2,609	1.0%	\$ 700	0.7%	0.6%
Primary Food Processing - Meat	\$ 2,808	2.3%	80,278	4.0%	\$ 19,523	7.3%	\$ 4,629	4.4%	3.8%
<b>Total Primary Food Processing</b>	<b>\$ 5,331</b>	<b>4.3%</b>	<b>144,210</b>	<b>7.2%</b>	<b>\$ 36,030</b>	<b>13.4%</b>	<b>\$ 9,012</b>	<b>8.6%</b>	<b>7.4%</b>
Animal and Pet Foods	\$ 708	0.6%	16,567	0.8%	\$ 4,530	1.7%	\$ 1,182	1.1%	1.0%
Other Food Processing	\$ 1,146	0.9%	25,035	1.3%	\$ 6,074	2.3%	\$ 1,862	1.8%	1.5%
<b>Total Other Food/Ag Processing</b>	<b>\$ 1,854</b>	<b>1.5%</b>	<b>41,602</b>	<b>2.1%</b>	<b>\$ 10,604</b>	<b>3.9%</b>	<b>\$ 3,044</b>	<b>2.9%</b>	<b>2.5%</b>
Ag Chemical and Fertilizer	\$ 776	0.6%	14,624	0.7%	\$ 4,986	1.9%	\$ 1,433	1.4%	1.2%
Farm Machinery	\$ 1,349	1.1%	22,395	1.1%	\$ 4,381	1.6%	\$ 2,223	2.1%	1.8%
<b>Total Ag Support/Input Manufacturing</b>	<b>\$ 2,138</b>	<b>1.7%</b>	<b>37,551</b>	<b>1.9%</b>	<b>\$ 9,395</b>	<b>3.5%</b>	<b>\$ 3,671</b>	<b>3.5%</b>	<b>3.0%</b>
<b>Total Ag Production/Agribusiness</b>	<b>\$ 12,622</b>	<b>10.2%</b>	<b>331,880</b>	<b>16.5%</b>	<b>\$ 72,143</b>	<b>26.8%</b>	<b>\$ 22,801</b>	<b>21.8%</b>	<b>18.8%</b>
Non-Ag Industries	\$ 53,010	42.9%	1,390,127	69.2%	\$ 162,504	60.4%	\$ 81,803	78.2%	67.3%
Household Consumption	\$ 57,887	46.9%	287,418	14.3%	\$ 34,431	12.8%	\$ 16,963		14.0%
<b>Total</b>	<b>\$ 123,519</b>	<b>100.0%</b>	<b>2,009,426</b>	<b>100.0%</b>	<b>\$ 269,078</b>	<b>100.0%</b>	<b>\$ 121,568</b>	<b>100.0%</b>	<b>100.0%</b>

Table 4, IMPLAN Results (Detailed Agricultural Sector Analysis)

## Aggregated Agricultural and Other Sector Analysis

Results for the aggregated agricultural and other sector analysis yielded some interesting points worthy of mention. As described in the Methodology section, the aggregated agricultural and other sector analysis provided for a look at what general portions of the ag and ag-related industries contribute to both county and state level economies. Generalizing the results for this section of the report provides for comparison to other industries present within the State of Iowa. The following aggregation scheme was used in generalizing the agricultural portion of the results<sup>12</sup>:

- **Crops**
  - Grains, Oilseeds, Other Crop Production, Primary Food Processing – Crops, Other Food Processing
- **Livestock**
  - Hogs, Cattle, Dairy, Egg Laying Hens, Turkeys, Primary Food Processing – Meat, and Primary Food Processing – Dairy
- **Other Ag**
  - Farm Machinery, Animal and Pet Foods, Ag Chemical and Fertilizer, and Ag Support

In addition to the three agricultural designations above, thirteen additional non-agricultural industries were analyzed. Results pertaining the contribution of agriculture in relation to these thirteen other Iowa industries in terms of Output, Jobs, Value-added, and Income follows.

### Output Contributions

“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 any deductions for the cost or origination of inputs that were used in the production process.

In terms of total output generated from various industries in the State of Iowa, the combination of the three agricultural sectors (crops, livestock, and other ag) is the largest contributor to the state’s economy. Agriculture contributes 26.8 percent (\$72.1 billion) of the state’s output. In addition to agriculture playing an important part in the state’s economy, several other industries also play a key role in the state (see Figure 17). The top five industries in the State of Iowa in terms of the contribution they make toward output are:

1. Agriculture
2. Manufacturing
3. Households<sup>13</sup>
4. Government<sup>14</sup>
5. Services

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<sup>12</sup> Data for the Crops, Livestock, and Other Ag designations in Figures 17-20 are based upon a summation of data in the Detailed Agricultural Sector analysis and is therefore identical to that data.

<sup>13</sup> Because households are a significant purchaser and provider of goods and services, they are included as an “industry”

<sup>14</sup> For reasons explained in the methodology section of this report, governments are considered an industry.

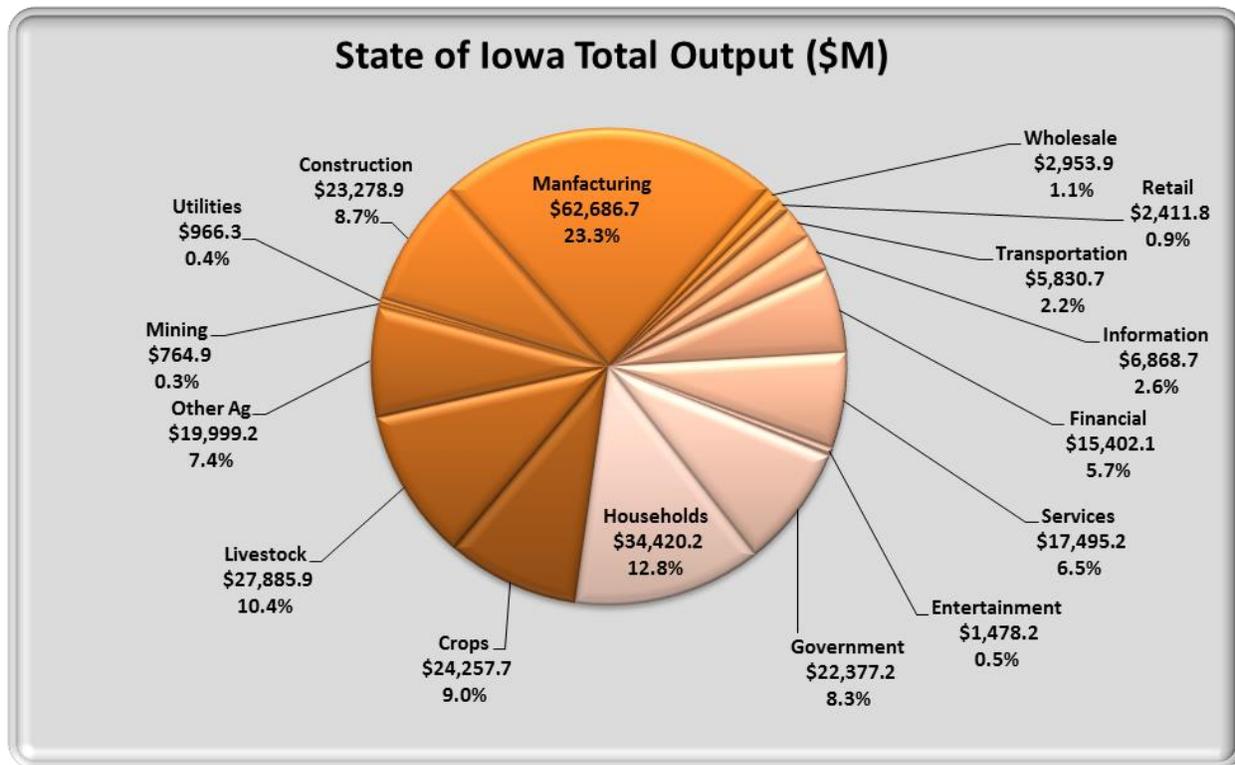


Figure 17, Economic Contribution of Iowa's Industries (Output)

### Jobs Contributions

“Jobs<sup>15</sup>” represents an estimate of the number of positions (jobs) currently filled in an area and/or industry. The estimates provided here originate with the databases of the IMPLAN input-output model. “Jobs” counts positions whether they are full-time 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 “Agricultural production” or “Agri-food sector”) the number is an estimate of the number of jobs filled within that industry in the area specified.

In terms of total jobs generated from various industries in the State of Iowa, the combination of the three agricultural sectors (crops, livestock, and other ag) is the second largest contributor to the state’s number of jobs. Agriculture supports 16.5 percent (331,879 jobs) of the state’s jobs. In addition to agriculture playing an important part in the state’s economy, several other industries also play a key role in the state (see Figure 18). The top five industries in the State of Iowa in terms of the contribution they make toward jobs are:

- |                |                  |                 |
|----------------|------------------|-----------------|
| 1. Households  | 3. Government    | 5. Construction |
| 2. Agriculture | 4. Manufacturing |                 |

<sup>15</sup> Jobs 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 location. Comparisons of wages and compensation are more appropriate in an economic value context.

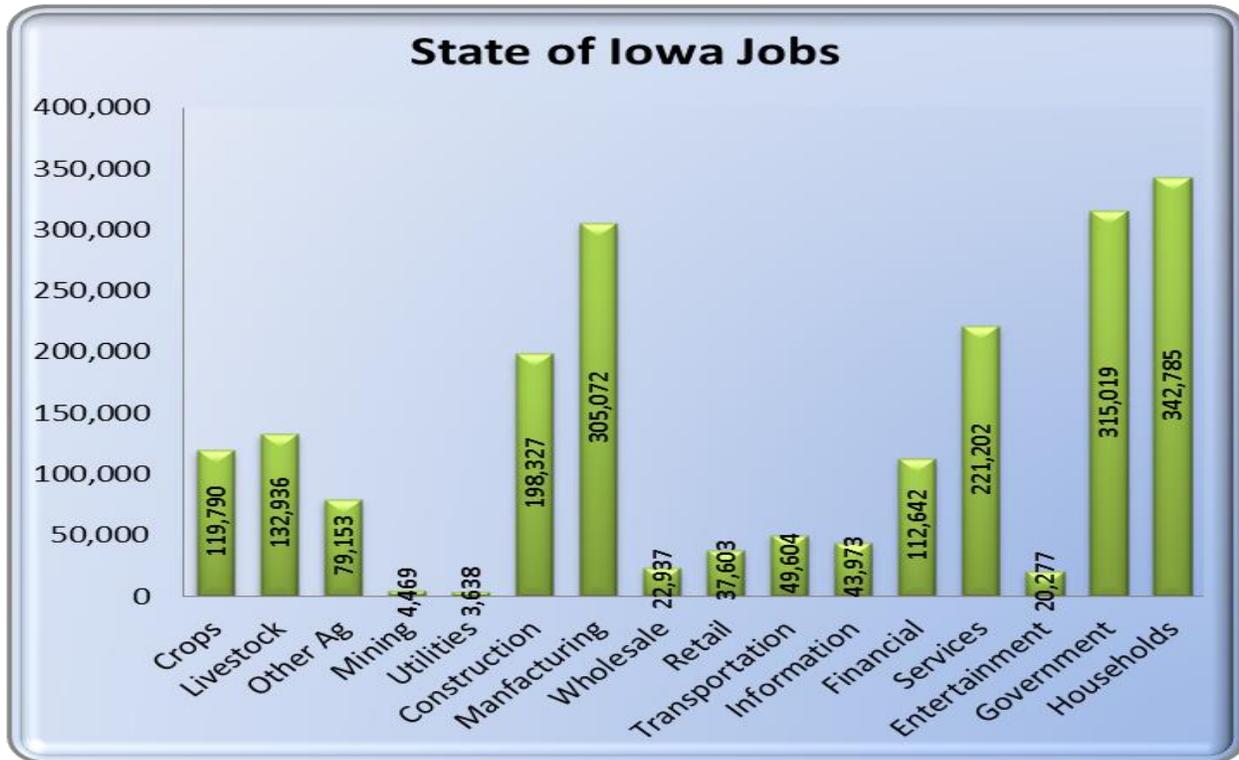


Figure 18, Economic Contribution of Iowa's Industries (Jobs)

### Value-Added Contributions

“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 area (industry) represents the value of the area’s (industry’s) total output minus the value of any inputs into the production process that were imported from other areas (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 industries in the State of Iowa, the combination of the three agricultural sectors (crops, livestock, and other ag) is the second largest contributor to the state’s value-added. Agriculture contributes 18.8 percent (\$22.8 billion) of the state’s value-added. In this representation, household consumption is treated as its own industry, and all production feeding local household demand is aggregated to household demand. Iowa economic production supporting this household demand generated \$17.0 billion of Iowa value-added, making household demand a major individual industry in its own right. Part of this \$17.0 billion, however, is final household demand sourced from the agri-food sector. Removing household demand driven production from the agri-food sector industries and retaining it in the total Iowa economy understates the total agri-food production share of total Iowa value-added.

In addition to agriculture playing an important part in the state’s value-added, several other industries also play a key role in the state (see Figure 19). The top five industries in the State of Iowa in terms of the contribution they make toward value-added are:

- 1. Manufacturing
- 2. Agriculture
- 3. Households
- 4. Government
- 5. Construction

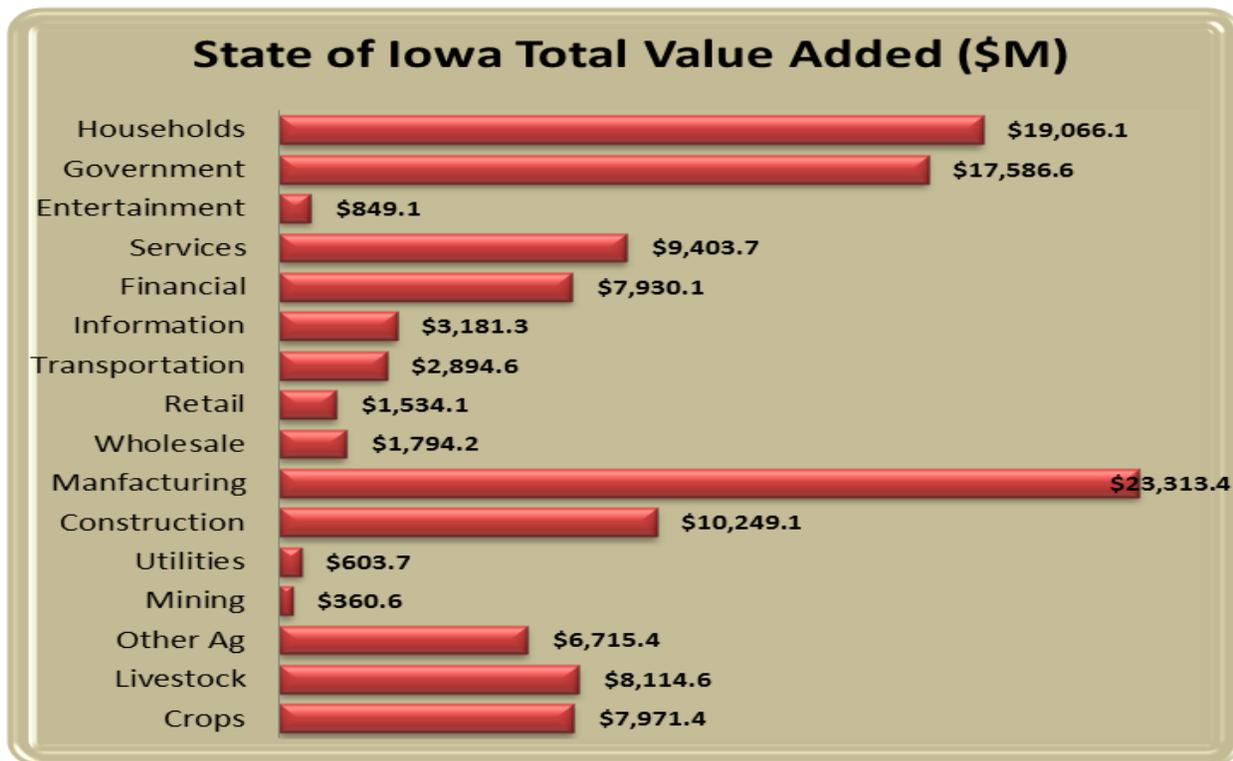


Figure 19, Economic Contribution of Iowa's Industries (Value-Added)

### Household Income Contributions

“Household income” refers to 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).

In terms of total household income generated from various industries in the State of Iowa, the combination of the three agricultural sectors (crops, livestock, and other ag) is the fourth largest contributor to the state’s household income. Agriculture contributes 10.2 percent (\$12.6 billion) of the state’s household income. In addition to agriculture playing an important part in the state’s household income, several other industries also play a key role in the state (see Figure 20). The top five industries in the State of Iowa in terms of the contribution they make toward household income are:

- 1. Households
- 2. Manufacturing
- 3. Government
- 4. Agriculture
- 5. Construction

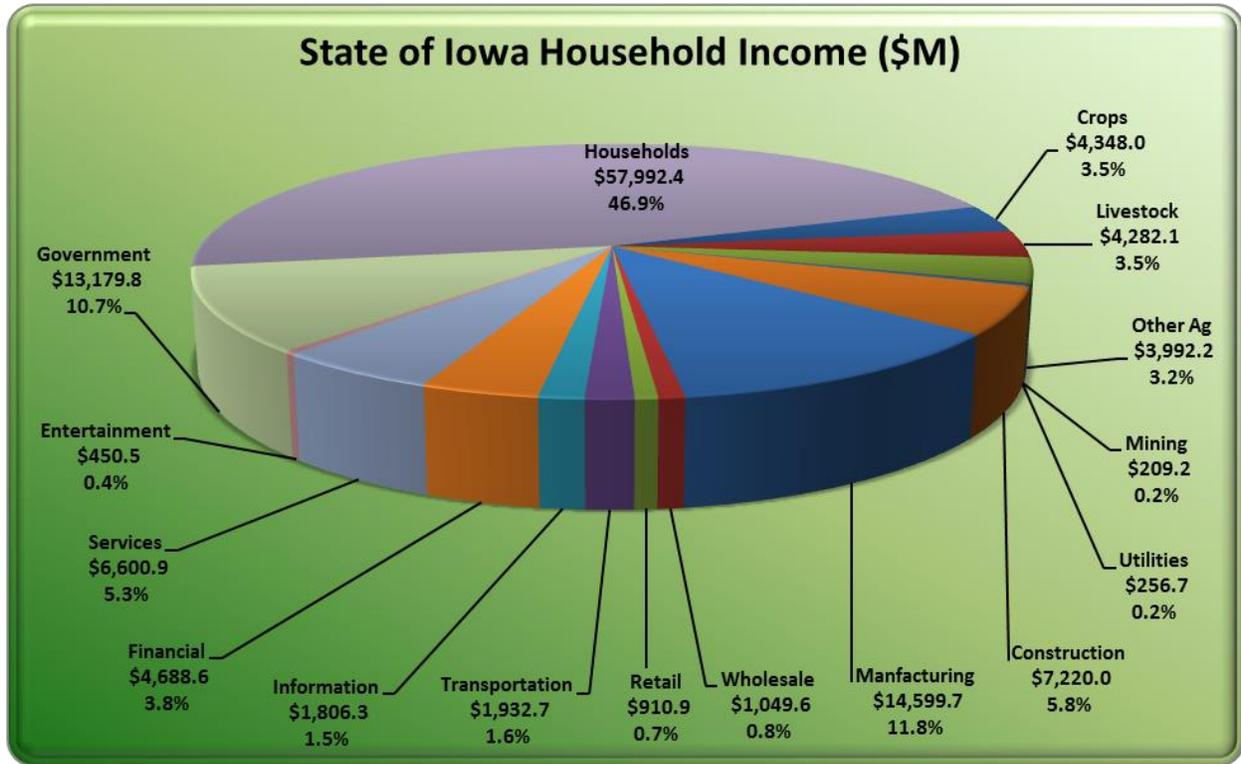


Figure 20, Economic Contribution of Iowa's Industries (Household Income)

Table 5 shows industry-level value-added under this aggregation in four contexts.

1. As a relative share of industry output (a production value yield rate)
2. As a relative share of total Iowa jobs
3. As a relative share of total Iowa value-added (a share of the economy's overall value)
4. As a relative share of Iowa value-added net of production driven by Iowa household consumption

<b>Industry</b>	<b>Household Income</b>	<b>HH Income (% of Total)</b>	<b>Total Jobs</b>	<b>Total Jobs (% of Total)</b>	<b>Total Output (\$M)</b>	<b>Total Output (% of Total)</b>	<b>Total Value-Added (\$M)</b>	<b>Total VA (% of Total less HH)</b>	<b>Total VA (% of Total)</b>
Crops	\$ 4,348	3.5%	119,790	6.0%	\$ 24,258	9.0%	\$ 7,971	7.8%	6.6%
Livestock	\$ 4,282	3.5%	132,936	6.6%	\$ 27,886	10.4%	\$ 8,115	7.9%	6.7%
Other Ag	\$ 3,992	3.2%	79,153	3.9%	\$ 19,999	7.4%	\$ 6,715	6.6%	5.5%
<b>Total Ag</b>	<b>\$ 12,622</b>	<b>10.2%</b>	<b>331,879</b>	<b>16.5%</b>	<b>\$ 72,143</b>	<b>26.8%</b>	<b>\$ 22,801</b>	<b>22.2%</b>	<b>18.8%</b>
Mining	\$ 209	0.2%	4,469	0.2%	\$ 765	0.3%	\$ 361	0.4%	0.3%
Utilities	\$ 257	0.2%	3,638	0.2%	\$ 966	0.4%	\$ 604	0.6%	0.5%
Construction	\$ 7,220	5.8%	198,327	9.9%	\$ 23,279	8.7%	\$ 10,249	10.0%	8.4%
Manufacturing	\$ 14,600	11.8%	305,072	15.2%	\$ 62,687	23.3%	\$ 23,313	22.7%	19.2%
Wholesale	\$ 1,050	0.9%	22,937	1.1%	\$ 2,954	1.1%	\$ 1,794	1.8%	1.5%
Retail	\$ 911	0.7%	37,603	1.9%	\$ 2,412	0.9%	\$ 1,534	1.5%	1.3%
Transportation	\$ 1,933	1.6%	49,604	2.5%	\$ 5,831	2.2%	\$ 2,895	2.8%	2.4%
Information	\$ 1,806	1.5%	43,973	2.2%	\$ 6,869	2.6%	\$ 3,181	3.1%	2.6%
Financial	\$ 4,689	3.8%	112,642	5.6%	\$ 15,402	5.7%	\$ 7,930	7.7%	6.5%
Services	\$ 6,601	5.3%	221,202	11.0%	\$ 17,495	6.5%	\$ 9,404	9.2%	7.7%
Entertainment	\$ 451	0.4%	20,277	1.0%	\$ 1,478	0.6%	\$ 849	0.8%	0.7%
Government	\$ 13,180	10.7%	315,019	15.7%	\$ 22,377	8.3%	\$ 17,587	17.2%	14.5%
Households	\$ 57,992	47.0%	342,785	17.1%	\$ 34,420	12.8%	\$ 19,066		15.7%
<b>Total</b>	<b>\$ 123,520</b>	<b>100.0%</b>	<b>2,009,427</b>	<b>100.0%</b>	<b>\$ 269,078</b>	<b>100.0%</b>	<b>\$ 121,568</b>	<b>100.0%</b>	<b>100.0%</b>

Table 5, IMPLAN Results (Production Process Aggregation)

## County Level Summary

The main focus of this report has been to provide background, discuss methodology, and present results at the state level. However, similar analyses have been performed for all of Iowa's 99 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 in terms of the four primary measures of economic contribution (output, jobs, value-added, and household income) presented in this document. While there is significant variation across counties, there are some consistencies as well. A county that is very reliant upon agriculture in terms of output is highly likely to be reliant upon agriculture in terms of jobs, value-added, and household income.

Table 6 illustrates the top ten counties that are most or least reliant upon ag and ag-related industries. Not surprisingly, the counties most reliant upon ag and ag-related industries tend to be rural while those least reliant up on ag and ag-related industries tend to be more urban. As discussed at the state level, the degree to which further processing is present in a county has large implications regarding how a county ranks – the more added value can be added to locally sourced inputs, the higher share of its economy will be attributed to a county.

Ten Iowa Counties Most Reliant on Agriculture		Ten Iowa Counties Least Reliant on Agriculture	
1	Crawford	1	Johnson
2	Buena Vista	2	Polk
3	Osceola	3	Dubuque
4	Sac	4	Marion
5	Taylor	5	Scott
6	Plymouth	6	Warren
7	Cherokee	7	Lucas
8	Wright	8	Jefferson
9	Mitchell	9	Boone
10	Louisa	10	Des Moines

Table 6, Top 10 Counties Most and Least Reliant Upon Ag and Ag-Related Industries

- 20% of Iowa's counties **derive at least one half** of their total output from ag and ag-related industries.
- 44% of Iowa's counties **derive at least one fourth** of their jobs from ag and ag-related industries.
- 12% of Iowa's counties **derive at least one fifth** of their labor income from ag and ag-related industries.

32% Iowa's counties **derive at least one third** of their total value-added from ag and ag-related industries.

### Output Contributions

Figure 21 shows the level of output derived from ag and ag-related industries at the county level. As shown, there are 20 counties which derive greater than 50 percent of their output from the ag and ag-related industries. Below are the top five counties which derive the largest share of their output from ag and ag-related industries:

- Crawford
- Buena Vista
- Louisa
- Sac
- Osceola

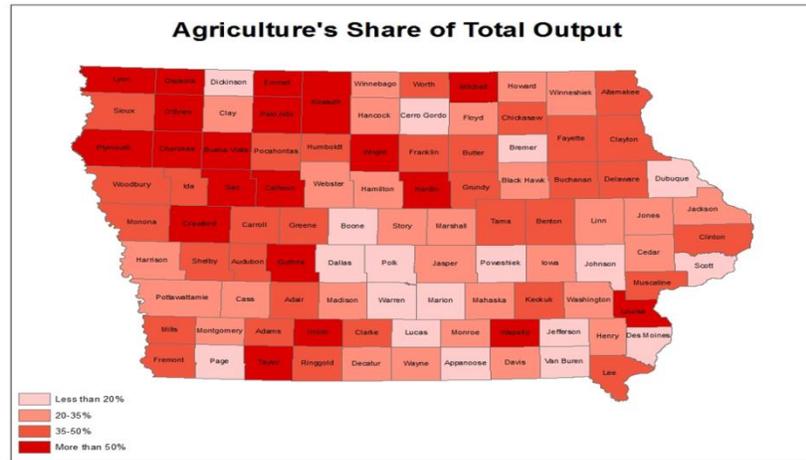


Figure 21, Percent of Output Derived from Ag and Ag-Related Industries

### Jobs Contributions

Figure 22 shows the level of jobs derived from ag and ag-related industries at the county level. As shown, there are 44 counties which derive greater than 25 percent of their jobs from the ag and ag-related industries. Below are the top five counties which derive the largest share of their jobs from ag and ag-related industries:

- Crawford
- Buena Vista
- Taylor
- Louisa
- Sac

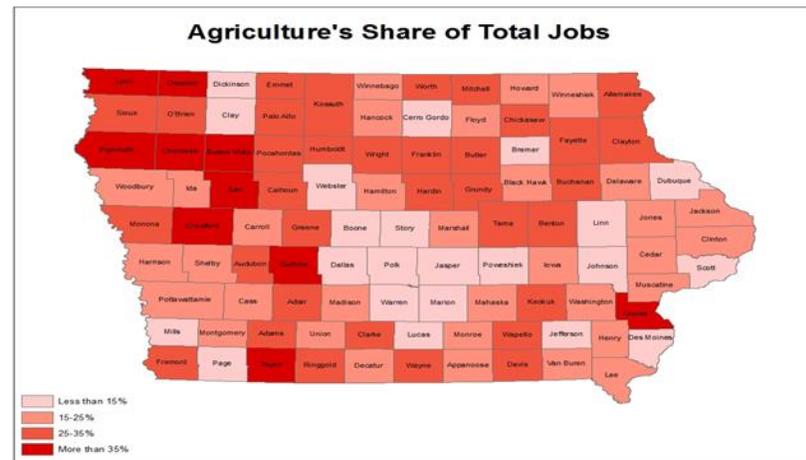


Figure 22, Percent of Jobs Derived from Ag and Ag-Related Industries



## Conclusion

The intent of this study has been to develop an understanding of the current economic status of Iowa agriculture and quantify its contribution to Iowa's economy as a whole, as well as each of its 99 counties. This research has been conducted using the same methodology and estimating procedures as the original study, which was completed in 2005 by Iowa State University (using the 2002 Census of Agriculture). As with the original study, data from the most recent Census of Agriculture (2007), the Bureau of Economic Analysis, and IMPLAN (a software company which estimates economic relationships) datasets were relied upon.

There are several very interdependent industries in Iowa – food manufacturing, feed manufacturing, production agriculture, and several supporting industries. Together, these three industries are critical to Iowa. This analysis shows that removal of any one of the food manufacturing, feed manufacturing or production agriculture industries would likely cause significant adverse impacts in remaining industries.

The results of this study show that Iowa continues to be an extremely important agricultural state and agriculture plays a crucial role in the overall economic health of the State of Iowa. Iowa agriculture is connected to a large, integrated set of industries – from the production of agricultural commodities to food and feed processing; from agricultural input manufacturing to many ag-support industries.

The study also reaffirms the importance of livestock (including dairy) and poultry farming's contribution to the state's economy. Statewide household income attributed to livestock and poultry production, for example, is just less than \$1.1 billion (0.9% of state total). Livestock and poultry farming also contributes 43,324 jobs, 2.2 percent of the state's total. Processing of the meat and dairy produced from the state's livestock and poultry accounts for 89,612 jobs (4.5% of state total) with total output valued at \$22.1 billion (8.2% of state total).

## Iowa Agriculture: Looking Ahead

There are several areas that have implications for the strength of Iowa agriculture going forward and its ability to remain a key part of the state’s economy. These are:

- Ethanol production
- Livestock production
- The 2008 recession

### Ethanol Production

Due to the Renewable Fuel Standard (RFS) enacted in 2005 (and recently updated in 2007), the production of ethanol continues to increase at a rapid rate (see Figure 25). Because the primary input for ethanol production in the United States is corn, the impact on production and prices of corn have increased in recent years. The year 2007, which is the year of study for this analysis, was a year when increases in corn and other commodity prices were increasing at a particularly rapid pace (see Figure 26). From 2005 to 2007, for example, annual prices for both corn and soybeans doubled; the increase in ethanol production during this same time period was likely responsible for a portion of this increase.

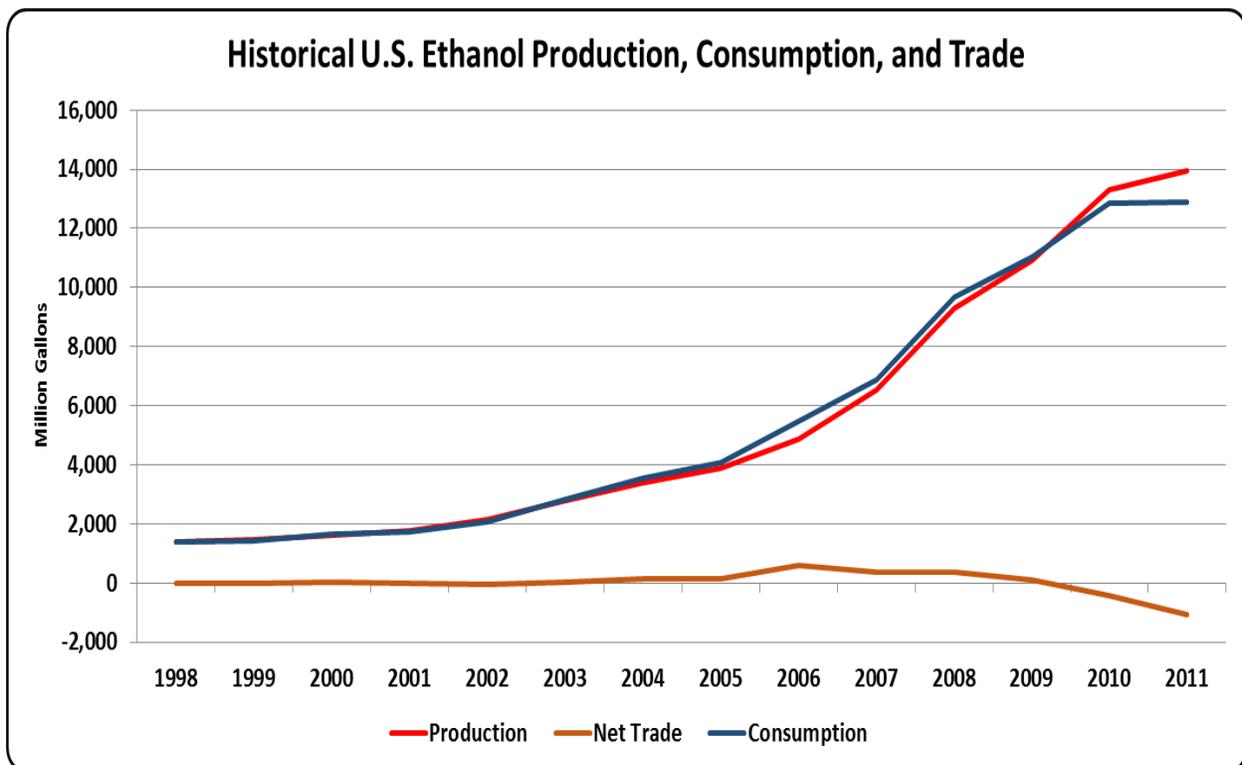


Figure 25, Historical U.S. Ethanol Production, Consumption, and Trade

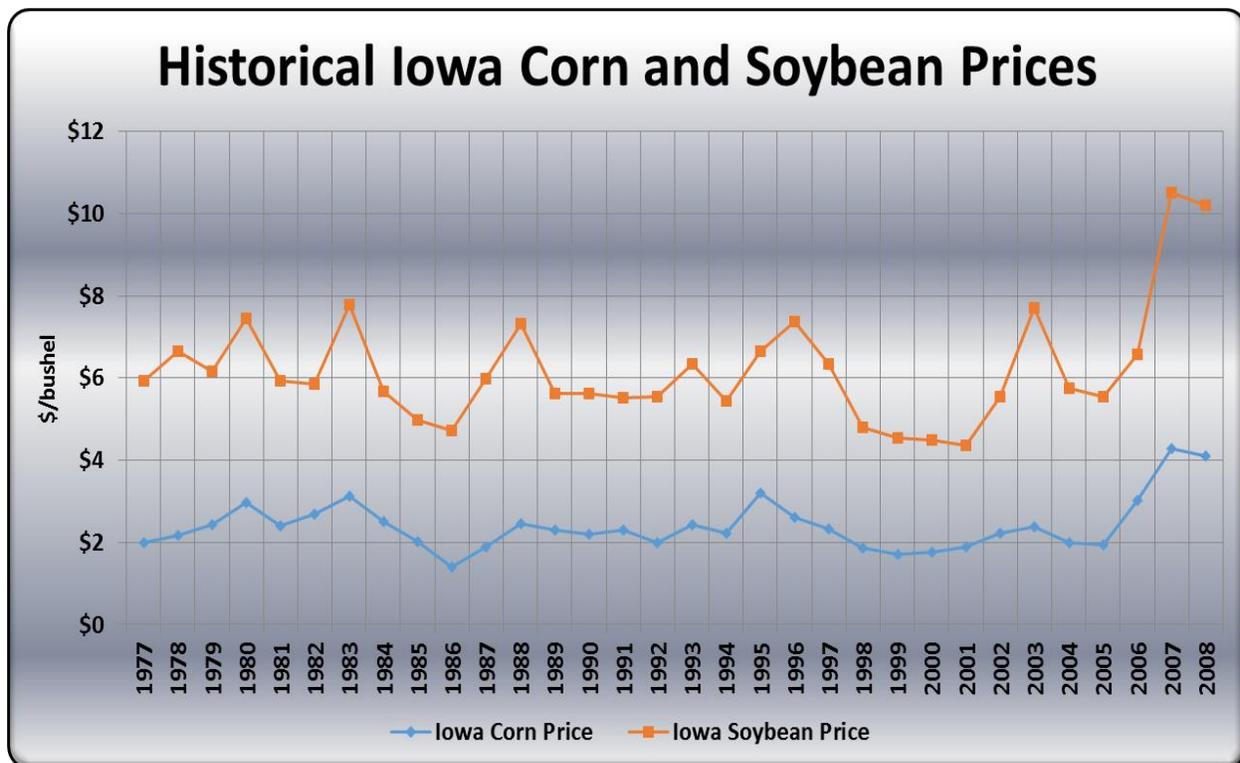


Figure 26, Historical Iowa Corn & Soybean Prices

In addition to having an impact on the prices of farm commodities, the production of ethanol has led to a significant increase in wealth of many Iowa residents. Many of the ethanol plants in operation in Iowa are farmer-owned, which suggests that much of the increase in wealth may be re-invested in agricultural industries (i.e., farm machinery, land purchases, etc.) as shareholders are able to capitalize on the liquidity of their investments. Additional investment in agriculture will likely increase the share of Iowa's economy derived from agriculture.

The impact of prices on the contribution of various industries on the state illustrates a key point regarding the type of analysis contained in this report. The IMPLAN modeling system is a fixed, or static, price model that does not account for the impact of changes in prices on demanders of those industries. Therefore, changes in pricing relationships can be difficult to model in the context of this research framework.

### Livestock Production

As the production of ethanol continues to increase to meet federally-mandated levels, pressure will remain on crop producers to produce additional corn. This upward pressure on corn prices also has an impact on other commodities, many of which are included as key components of livestock rations. While a higher-priced scenario is a mostly welcome prospect for crop producers, livestock producers are and will continue to struggle to remain profitable (see Figure 27). Given that nearly 39 percent of ag and ag-related industries' contribution to the state's economy was derived from livestock in 2007, this could have large implications for agriculture's contribution to the state in the near future.

In order for livestock to again reach profitability, consolidation of the industry will need to occur. As less efficient producers and animals are culled, prices will rise to the point that profitability may be achieved. Because the IMPLAN modeling system is sensitive to price levels, the impact of higher livestock prices on the share of Iowa's economy derived from livestock will depend upon the degree to which production reductions are offset by higher prices.

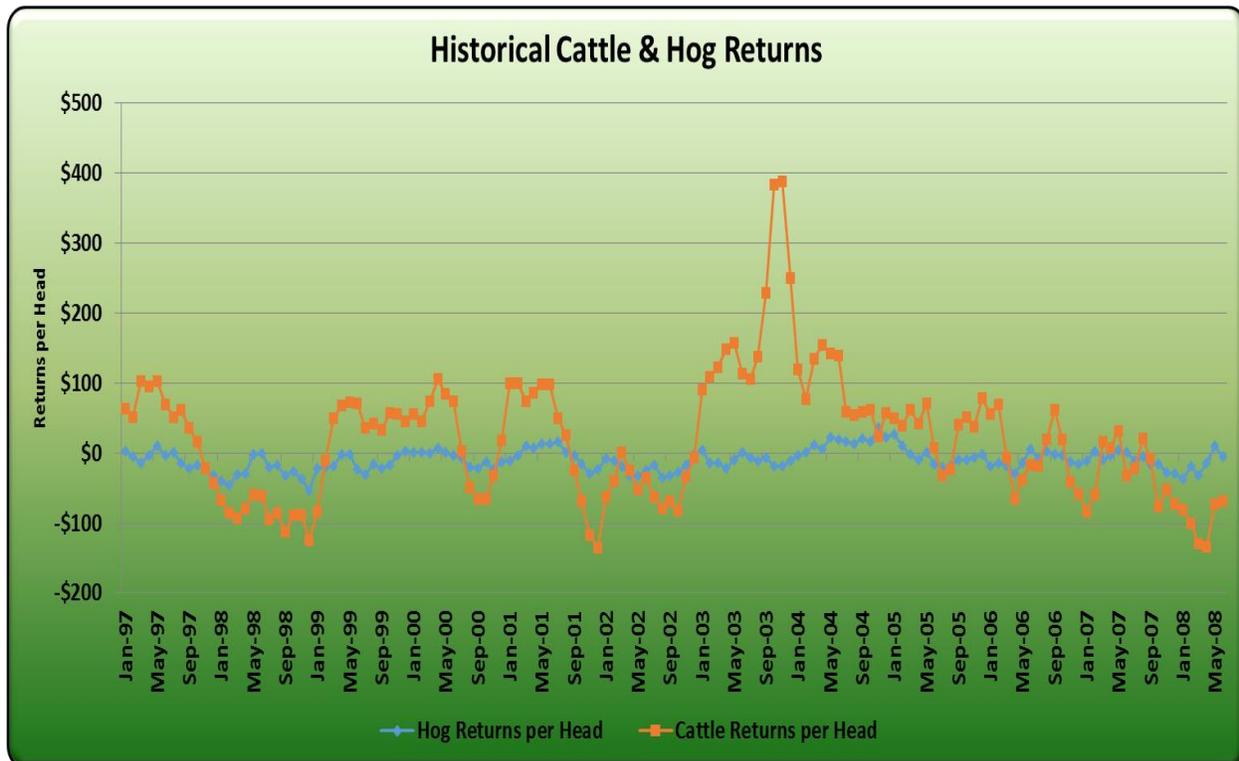


Figure 27, Historical Cattle & Hog Returns

### The 2008 Recession and Agriculture

As described previously, agriculture has, on the whole, been experiencing prosperous times recently. Record high grain prices stimulated record high incomes and surging land values increased wealth. Crop producers overall were doing well as the prices of their crops outpaced rising input costs (see Figure 28). Due to the interconnectedness of Iowa's economy, businesses that support agriculture have generally shared in the prosperity. But the current financial crisis has been a hard and swift change for crop farmers. In just 14 trading days last fall, futures prices for corn lost 30%, soybeans 26%, and wheat 23%. Ethanol prices, a critical market for corn, fell by 24% during that period. The 2008 crop was a relatively expensive one to produce, which is higher than current grain prices support. For 2009, it had been anticipated that input costs would continue to rise, so either crop prices will have to rise or some adjustments in lower input costs will have to occur for 2009 to avoid negative margins with current crop prices. With crops in the ground, the question turns to how demand for crops will play out during the balance of 2009.

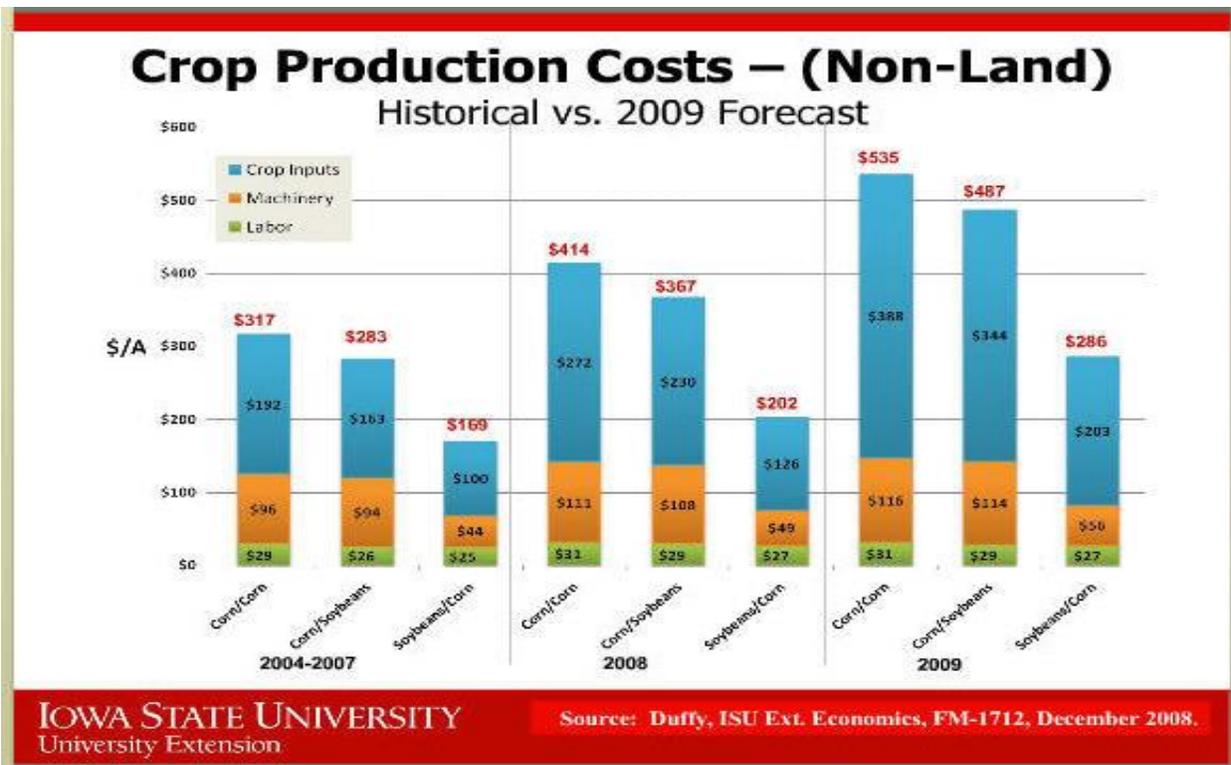


Figure 28, Recent Crop Cost of Production

### Interest Rates and Inflation

A combination of deregulation of the interest rate markets and a change in the Federal Reserve monetary policy in the early 80s, implemented in part to stem rising inflation expectations, resulted in an unprecedented rise in interest rates, with the prime rate peaking in 1980 and 1981 above 20%. During the farm financial crisis of the 1980s, high interest rates combined with higher debt obligations were some of the factors that contributed to its cause. In contrast, today's interest rates for the majority of agricultural loans are at much lower levels, with the prime rate now at 4.5%. Many agricultural loans were set up as variable rate back then; today's loans are more likely at a fixed rate. The question now becomes whether the Federal Reserve will reduce interest rates further to stimulate the economy.

### Debt

The proportion of assets in a business financed with debt as compared to those financed with equity (leverage), is an important measure of the financial health or resiliency to respond to financial stress. Today's agricultural debt is extremely low compared to assets—currently at about 9%, compared to more than double that in the 1980s. Since 2004, the equity (assets minus debt) of U.S. agriculture has increased by \$712 billion. This is a result of a \$741 billion increase in asset values (i.e., land) with farmers taking on only \$29 billion in additional debt.

### Liquidity

The amount of a farm's asset base that can be converted to cash relatively easily and without significant losses is liquidity. A common measure of liquidity is the ratio of current assets vs. current debts—for

farmers in 2007 this ratio was 2.42, putting them in a very strong position. This will likely be lower for 2008 and 2009, but a business with a strong ratio is better able to absorb the financial consequences of a period of lower incomes.

## Appendix A, Farm Typology

**Farm Typology:** The Economic Research Service (ERS), an agency of the United States Department of Agriculture, has established typology of farms to group farms by similar characteristics. This census is the first to include data cross-tabulated by the eight farm typology categories. There are two major groupings of farms, small family farms with sales of less than \$250,000, and other farms. The small family farm group is divided into 5 subcategories, described below:

1. Limited-resource farms have market value of agricultural products sold gross sales of less than \$100,000, and total principal operator household income of less than \$20,000.
2. Retirement farms have market value of agricultural products sold of less than \$250,000, and a principal operator who reports being retired.
3. Residential/lifestyle farms have market value of agricultural products sold of less than \$250,000, and a principal operator who reports his/her primary occupation as other than farming.
4. Farming occupation/lower-sales farms have market value of agricultural products sold of less than \$100,000, and a principal operator who reports farming as his/her primary occupation.
5. Farming occupation/higher-sales farms have market value of agricultural products sold of between \$100,000 and \$249,999, and a principal operator who reports farming as his/her primary occupation.

Other farms are subdivided into three subcategories, described below:

1. Large family farms have market value of agricultural products sold between \$250,000 and \$499,999.
2. Very large family farms have market value of agricultural products sold of \$500,000 or more.
3. Nonfamily farms are farms organized as nonfamily corporations, as well as farms operated by hired managers.

## Appendix B, Shares of Gross State Product Derived from Ag Production and Food Processing (2007)

State	Total GSP (\$1,000)	Ag Production/Food Manufacturing			Ag Production			Food Manufacturing		
		GSP (\$1,000)	Percent of GSP	Rank	GSP (\$1,000)	Percent of GSP	Rank	GSP (\$1,000)	Percent of GSP	Rank
United States	\$ 13,936,199	\$ 292,889	2.1%		\$ 114,893	0.8%		\$ 177,996	1.3%	
North Dakota	\$ 28,549	\$ 2,874	10.1%	1	\$ 2,353	8.2%	1	\$ 521	1.8%	12
Nebraska	\$ 82,135	\$ 7,374	9.0%	2	\$ 4,580	5.6%	3	\$ 2,794	3.4%	3
<b>Iowa</b>	<b>\$ 134,053</b>	<b>\$ 11,188</b>	<b>8.3%</b>	<b>3</b>	<b>\$ 6,068</b>	<b>4.5%</b>	<b>4</b>	<b>\$ 5,120</b>	<b>3.8%</b>	<b>2</b>
South Dakota	\$ 34,885	\$ 2,888	8.3%	4	\$ 2,553	7.3%	2	\$ 335	1.0%	30
Idaho	\$ 54,273	\$ 3,447	6.4%	5	\$ 2,404	4.4%	5	\$ 1,043	1.9%	11
North Carolina	\$ 396,740	\$ 23,630	6.0%	6	\$ 3,150	0.8%	24	\$ 20,480	5.2%	1
Arkansas	\$ 97,470	\$ 4,875	5.0%	7	\$ 2,536	2.6%	7	\$ 2,339	2.4%	5
Kansas	\$ 120,599	\$ 5,203	4.3%	8	\$ 3,039	2.5%	8	\$ 2,164	1.8%	13
Kentucky	\$ 150,487	\$ 6,053	4.0%	9	\$ 1,689	1.1%	18	\$ 4,364	2.9%	4
Wisconsin	\$ 236,522	\$ 8,862	3.7%	10	\$ 3,878	1.6%	10	\$ 4,984	2.1%	10
Montana	\$ 35,085	\$ 1,223	3.5%	11	\$ 1,058	3.0%	6	\$ 165	0.5%	45
Missouri	\$ 232,959	\$ 7,765	3.3%	12	\$ 2,660	1.1%	17	\$ 5,105	2.2%	8
Vermont	\$ 24,043	\$ 753	3.1%	13	\$ 341	1.4%	13	\$ 412	1.7%	14
Mississippi	\$ 92,107	\$ 2,805	3.0%	14	\$ 1,466	1.6%	11	\$ 1,339	1.5%	17
Minnesota	\$ 253,374	\$ 7,673	3.0%	15	\$ 4,399	1.7%	9	\$ 3,274	1.3%	21
Georgia	\$ 399,579	\$ 11,466	2.9%	16	\$ 2,622	0.7%	27	\$ 8,844	2.2%	7
Oregon	\$ 167,088	\$ 4,351	2.6%	17	\$ 2,274	1.4%	14	\$ 2,077	1.2%	22
Tennessee	\$ 242,220	\$ 6,200	2.6%	18	\$ 682	0.3%	39	\$ 5,518	2.3%	6
Indiana	\$ 261,755	\$ 6,638	2.5%	19	\$ 2,692	1.0%	20	\$ 3,946	1.5%	16
Virginia	\$ 389,570	\$ 9,552	2.5%	20	\$ 1,019	0.3%	40	\$ 8,533	2.2%	9
Washington	\$ 325,118	\$ 7,523	2.3%	21	\$ 4,072	1.3%	15	\$ 3,451	1.1%	26
Ohio	\$ 467,138	\$ 10,178	2.2%	22	\$ 2,507	0.5%	34	\$ 7,671	1.6%	15
New Mexico	\$ 74,356	\$ 1,617	2.2%	23	\$ 1,171	1.6%	12	\$ 446	0.6%	42
Oklahoma	\$ 140,378	\$ 3,007	2.1%	24	\$ 1,706	1.2%	16	\$ 1,301	0.9%	31
Colorado	\$ 242,633	\$ 5,032	2.1%	25	\$ 2,205	0.9%	21	\$ 2,827	1.2%	24
California	\$ 1,870,916	\$ 38,641	2.1%	26	\$ 19,969	1.1%	19	\$ 18,672	1.0%	27
Maine	\$ 49,065	\$ 1,009	2.1%	27	\$ 327	0.7%	26	\$ 682	1.4%	19
Alabama	\$ 165,665	\$ 3,384	2.0%	28	\$ 1,505	0.9%	22	\$ 1,879	1.1%	25
Illinois	\$ 626,611	\$ 12,728	2.0%	29	\$ 4,476	0.7%	25	\$ 8,252	1.3%	20
Pennsylvania	\$ 531,098	\$ 10,001	1.9%	30	\$ 2,598	0.5%	36	\$ 7,403	1.4%	18
Michigan	\$ 386,591	\$ 6,136	1.6%	31	\$ 2,282	0.6%	30	\$ 3,854	1.0%	28
Texas	\$ 1,147,404	\$ 17,014	1.5%	32	\$ 7,113	0.6%	28	\$ 9,901	0.9%	33
Delaware	\$ 59,592	\$ 856	1.4%	33	\$ 320	0.5%	33	\$ 536	0.9%	32
Louisiana	\$ 207,312	\$ 2,741	1.3%	34	\$ 1,148	0.6%	32	\$ 1,593	0.8%	34
Alaska	\$ 44,540	\$ 566	1.3%	35	\$ 15	0.0%	50	\$ 551	1.2%	23
Maryland	\$ 271,985	\$ 3,346	1.2%	36	\$ 660	0.2%	41	\$ 2,686	1.0%	29
Florida	\$ 760,936	\$ 9,133	1.2%	37	\$ 4,236	0.6%	31	\$ 4,897	0.6%	39
Utah	\$ 108,474	\$ 1,250	1.2%	38	\$ 486	0.4%	37	\$ 764	0.7%	36
Arizona	\$ 259,157	\$ 2,836	1.1%	39	\$ 1,534	0.6%	29	\$ 1,302	0.5%	43
Wyoming	\$ 33,708	\$ 361	1.1%	40	\$ 299	0.9%	23	\$ 62	0.2%	50
South Carolina	\$ 157,712	\$ 1,631	1.0%	41	\$ 645	0.4%	38	\$ 986	0.6%	41
Hawaii	\$ 64,070	\$ 618	1.0%	42	\$ 333	0.5%	35	\$ 285	0.4%	47
New Hampshire	\$ 57,868	\$ 528	0.9%	43	\$ 100	0.2%	44	\$ 428	0.7%	35
New York	\$ 1,076,255	\$ 9,289	0.9%	44	\$ 2,123	0.2%	42	\$ 7,166	0.7%	37
Connecticut	\$ 221,133	\$ 1,740	0.8%	45	\$ 333	0.2%	46	\$ 1,407	0.6%	40
New Jersey	\$ 471,372	\$ 3,688	0.8%	46	\$ 643	0.1%	47	\$ 3,045	0.6%	38
Massachusetts	\$ 352,378	\$ 1,948	0.6%	47	\$ 275	0.1%	48	\$ 1,673	0.5%	44
West Virginia	\$ 56,864	\$ 306	0.5%	48	\$ 108	0.2%	43	\$ 198	0.3%	49
Rhode Island	\$ 47,293	\$ 250	0.5%	49	\$ 34	0.1%	49	\$ 216	0.5%	46
Nevada	\$ 133,185	\$ 697	0.5%	50	\$ 204	0.2%	45	\$ 493	0.4%	48

## Appendix C, IMPLAN Detailed Agriculture Aggregation Template

<b>IMPLAN Code</b>	<b>IMPLAN Description</b>	<b>Aggregated Description</b>
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	Forest nurseries, forest products, and timber tracts	Other Crop Production
16	Logging	Other Crop Production
11	Cattle 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	Fishing	Hogs and Other Livestock
18	Hunting and trapping	Hogs and Other Livestock
19	Support activities for agriculture and forestry	Ag Support
379	Veterinary services	Ag Support
43	Flour milling and malt manufacturing	Primary Food Processing - Crops
44	Wet corn milling	Primary Food Processing - Crops
45	Soybean and other oilseed processing	Primary Food Processing - Crops
48	Sugar cane mills and refining	Primary Food Processing - Crops
49	Beet sugar manufacturing	Primary Food Processing - Crops
54	Fruit and vegetable canning, pickling, and drying	Primary Food Processing - Crops
55	Fluid milk and butter manufacturing	Primary Food Processing - Dairy
56	Cheese manufacturing	Primary Food Processing - Dairy
57	Dry, condensed, and evaporated dairy product manufacturing	Primary Food Processing - Dairy
58	Ice cream and frozen dessert manufacturing	Primary Food Processing - Dairy
59	Animal (except poultry) slaughtering, rendering, and processing	Primary Food Processing - Meat
60	Poultry processing	Primary Food Processing - Meat
61	Seafood product preparation and packaging	Primary Food Processing - Meat
41	Dog and cat food manufacturing	Animal and Pet Foods
42	Other animal food manufacturing	Animal and Pet Foods
46	Fats and oils refining and blending	Other Food Processing
47	Breakfast cereal manufacturing	Other Food Processing
50	Chocolate and confectionery manufacturing from cacao beans	Other Food Processing
51	Confectionery manufacturing from purchased chocolate	Other Food Processing
52	Nonchocolate confectionery manufacturing	Other Food Processing
53	Frozen food manufacturing	Other Food Processing
62	Bread and bakery product manufacturing	Other Food Processing
63	Cookie, cracker, and pasta manufacturing	Other Food Processing

## Appendix C, Continued

<b>IMPLAN Code</b>	<b>IMPLAN Description</b>	<b>Aggregated Description</b>
64	Tortilla manufacturing	Other Food Processing
65	Snack food manufacturing	Other Food Processing
66	Coffee and tea manufacturing	Other Food Processing
67	Flavoring syrup and concentrate manufacturing	Other Food Processing
68	Seasoning and dressing manufacturing	Other Food Processing
69	All other food manufacturing	Other Food Processing
70	Soft drink and ice manufacturing	Other Food Processing
71	Breweries	Other Food Processing
72	Wineries	Other Food Processing
73	Distilleries	Other Food Processing
74	Tobacco product manufacturing	Other Food Processing
126	Other basic organic chemical manufacturing	Ag Chemical and Fertilizer
130	Fertilizer manufacturing	Ag Chemical and Fertilizer
131	Pesticide and other agricultural chemical manufacturing	Ag Chemical and Fertilizer
203	Farm machinery and equipment manufacturing	Farm Machinery
20	Oil and gas extraction	Non-Ag Industries
21	Coal mining	Non-Ag Industries
22	Iron ore mining	Non-Ag Industries
23	Copper, nickel, lead, and zinc mining	Non-Ag Industries
24	Gold, silver, and other metal ore mining	Non-Ag Industries
25	Stone mining and quarrying	Non-Ag Industries
26	Sand, gravel, clay, and ceramic and refractory minerals mining and q	Non-Ag Industries
27	Other nonmetallic mineral mining and quarrying	Non-Ag Industries
28	Drilling oil and gas wells	Non-Ag Industries
29	Support activities for oil and gas operations	Non-Ag Industries
30	Support activities for other mining	Non-Ag Industries
31	Electric power generation, transmission, and distribution	Non-Ag Industries
32	Natural gas distribution	Non-Ag Industries
33	Water, sewage and other systems	Non-Ag Industries
34	Construction of new nonresidential commercial and health care struct	Non-Ag Industries
35	Construction of new nonresidential manufacturing structures	Non-Ag Industries
36	Construction of other new nonresidential structures	Non-Ag Industries
37	Construction of new residential permanent site single- and multi-famil	Non-Ag Industries
38	Construction of other new residential structures	Non-Ag Industries
39	Maintenance and repair construction of nonresidential maintenance a	Non-Ag Industries
40	Maintenance and repair construction of residential structures	Non-Ag Industries
75	Fiber, yarn, and thread mills	Non-Ag Industries
76	Broadwoven fabric mills	Non-Ag Industries
77	Narrow fabric mills and schiffli machine embroidery	Non-Ag Industries
78	Nonwoven fabric mills	Non-Ag Industries
79	Knit fabric mills	Non-Ag Industries
80	Textile and fabric finishing mills	Non-Ag Industries
81	Fabric coating mills	Non-Ag Industries

## Appendix C, Continued

<b>IMPLAN Code</b>	<b>IMPLAN Description</b>	<b>Aggregated Description</b>
82	Carpet and rug mills	Non-Ag Industries
83	Curtain and linen mills	Non-Ag Industries
84	Textile bag and canvas mills	Non-Ag Industries
85	All other textile product mills	Non-Ag Industries
86	Apparel knitting mills	Non-Ag Industries
87	Cut and sew apparel contractors	Non-Ag Industries
88	Men's and boys' cut and sew apparel manufacturing	Non-Ag Industries
89	Women's and girls' cut and sew apparel manufacturing	Non-Ag Industries
90	Other cut and sew apparel manufacturing	Non-Ag Industries
91	Apparel accessories and other apparel manufacturing	Non-Ag Industries
92	Leather and hide tanning and finishing	Non-Ag Industries
93	Footwear manufacturing	Non-Ag Industries
94	Other leather and allied product manufacturing	Non-Ag Industries
95	Sawmills and wood preservation	Non-Ag Industries
96	Veneer and plywood manufacturing	Non-Ag Industries
97	Engineered wood member and truss manufacturing	Non-Ag Industries
98	Reconstituted wood product manufacturing	Non-Ag Industries
99	Wood windows and doors and millwork	Non-Ag Industries
100	Wood container and pallet manufacturing	Non-Ag Industries
101	Manufactured home (mobile home) manufacturing	Non-Ag Industries
102	Prefabricated wood building manufacturing	Non-Ag Industries
103	All other miscellaneous wood product manufacturing	Non-Ag Industries
104	Pulp mills	Non-Ag Industries
105	Paper mills	Non-Ag Industries
106	Paperboard Mills	Non-Ag Industries
107	Paperboard container manufacturing	Non-Ag Industries
108	Coated and laminated paper, packaging paper and plastics film manu	Non-Ag Industries
109	All other paper bag and coated and treated paper manufacturing	Non-Ag Industries
110	Stationery product manufacturing	Non-Ag Industries
111	Sanitary paper product manufacturing	Non-Ag Industries
112	All other converted paper product manufacturing	Non-Ag Industries
113	Printing	Non-Ag Industries
114	Support activities for printing	Non-Ag Industries
115	Petroleum refineries	Non-Ag Industries
116	Asphalt paving mixture and block manufacturing	Non-Ag Industries
117	Asphalt shingle and coating materials manufacturing	Non-Ag Industries
118	Petroleum lubricating oil and grease manufacturing	Non-Ag Industries
119	All other petroleum and coal products manufacturing	Non-Ag Industries
120	Petrochemical manufacturing	Non-Ag Industries
121	Industrial gas manufacturing	Non-Ag Industries
122	Synthetic dye and pigment manufacturing	Non-Ag Industries
123	Alkalies and chlorine manufacturing	Non-Ag Industries
124	Carbon black manufacturing	Non-Ag Industries
125	All other basic inorganic chemical manufacturing	Non-Ag Industries

## Appendix C, Continued

<b>IMPLAN Code</b>	<b>IMPLAN Description</b>	<b>Aggregated Description</b>
127	Plastics material and resin manufacturing	Non-Ag Industries
128	Synthetic rubber manufacturing	Non-Ag Industries
129	Artificial and synthetic fibers and filaments manufacturing	Non-Ag Industries
132	Medicinal and botanical manufacturing	Non-Ag Industries
133	Pharmaceutical preparation manufacturing	Non-Ag Industries
134	In-vitro diagnostic substance manufacturing	Non-Ag Industries
135	Biological product (except diagnostic) manufacturing	Non-Ag Industries
136	Paint and coating manufacturing	Non-Ag Industries
137	Adhesive manufacturing	Non-Ag Industries
138	Soap and cleaning compound manufacturing	Non-Ag Industries
139	Toilet preparation manufacturing	Non-Ag Industries
140	Printing ink manufacturing	Non-Ag Industries
141	All other chemical product and preparation manufacturing	Non-Ag Industries
142	Plastics packaging materials and unlaminated film and sheet manufa	Non-Ag Industries
143	Unlaminated plastics profile shape manufacturing	Non-Ag Industries
144	Plastics pipe and pipe fitting manufacturing	Non-Ag Industries
145	Laminated plastics plate, sheet (except packaging), and shape manu	Non-Ag Industries
146	Polystyrene foam product manufacturing	Non-Ag Industries
147	Urethane and other foam product (except polystyrene) manufacturing	Non-Ag Industries
148	Plastics bottle manufacturing	Non-Ag Industries
149	Other plastics product manufacturing	Non-Ag Industries
150	Tire manufacturing	Non-Ag Industries
151	Rubber and plastics hoses and belting manufacturing	Non-Ag Industries
152	Other rubber product manufacturing	Non-Ag Industries
153	Pottery, ceramics, and plumbing fixture manufacturing	Non-Ag Industries
154	Brick, tile, and other structural clay product manufacturing	Non-Ag Industries
155	Clay and nonclay refractory manufacturing	Non-Ag Industries
156	Flat glass manufacturing	Non-Ag Industries
157	Other pressed and blown glass and glassware manufacturing	Non-Ag Industries
158	Glass container manufacturing	Non-Ag Industries
159	Glass product manufacturing made of purchased glass	Non-Ag Industries
160	Cement manufacturing	Non-Ag Industries
161	Ready-mix concrete manufacturing	Non-Ag Industries
162	Concrete pipe, brick, and block manufacturing	Non-Ag Industries
163	Other concrete product manufacturing	Non-Ag Industries
164	Lime and gypsum product manufacturing	Non-Ag Industries
165	Abrasive product manufacturing	Non-Ag Industries
166	Cut stone and stone product manufacturing	Non-Ag Industries
167	Ground or treated mineral and earth manufacturing	Non-Ag Industries
168	Mineral wool manufacturing	Non-Ag Industries
169	Miscellaneous nonmetallic mineral products	Non-Ag Industries
170	Iron and steel mills and ferroalloy manufacturing	Non-Ag Industries
171	Steel product manufacturing from purchased steel	Non-Ag Industries
172	Alumina refining and primary aluminum production	Non-Ag Industries

## Appendix C, Continued

<b>IMPLAN Code</b>	<b>IMPLAN Description</b>	<b>Aggregated Description</b>
173	Secondary smelting and alloying of aluminum	Non-Ag Industries
174	Aluminum product manufacturing from purchased aluminum	Non-Ag Industries
175	Primary smelting and refining of copper	Non-Ag Industries
176	Primary smelting and refining of nonferrous metal (except copper and	Non-Ag Industries
177	Copper rolling, drawing, extruding and alloying	Non-Ag Industries
178	Nonferrous metal (except copper and aluminum) rolling, drawing, extr	Non-Ag Industries
179	Ferrous metal foundries	Non-Ag Industries
180	Nonferrous metal foundries	Non-Ag Industries
181	All other forging, stamping, and sintering	Non-Ag Industries
182	Custom roll forming	Non-Ag Industries
183	Crown and closure manufacturing and metal stamping	Non-Ag Industries
184	Cutlery, utensil, pot, and pan manufacturing	Non-Ag Industries
185	Handtool manufacturing	Non-Ag Industries
186	Plate work and fabricated structural product manufacturing	Non-Ag Industries
187	Ornamental and architectural metal products manufacturing	Non-Ag Industries
188	Power boiler and heat exchanger manufacturing	Non-Ag Industries
189	Metal tank (heavy gauge) manufacturing	Non-Ag Industries
190	Metal can, box, and other metal container (light gauge) manufacturing	Non-Ag Industries
191	Ammunition manufacturing	Non-Ag Industries
192	Arms, ordnance, and accessories manufacturing	Non-Ag Industries
193	Hardware manufacturing	Non-Ag Industries
194	Spring and wire product manufacturing	Non-Ag Industries
195	Machine shops	Non-Ag Industries
196	Turned product and screw, nut, and bolt manufacturing	Non-Ag Industries
197	Coating, engraving, heat treating and allied activities	Non-Ag Industries
198	Valve and fittings other than plumbing	Non-Ag Industries
199	Plumbing fixture fitting and trim manufacturing	Non-Ag Industries
200	Ball and roller bearing manufacturing	Non-Ag Industries
201	Fabricated pipe and pipe fitting manufacturing	Non-Ag Industries
202	Other fabricated metal manufacturing	Non-Ag Industries
204	Lawn and garden equipment manufacturing	Non-Ag Industries
205	Construction machinery manufacturing	Non-Ag Industries
206	Mining and oil and gas field machinery manufacturing	Non-Ag Industries
207	Other industrial machinery manufacturing	Non-Ag Industries
208	Plastics and rubber industry machinery manufacturing	Non-Ag Industries
209	Semiconductor machinery manufacturing	Non-Ag Industries
210	Vending, commercial, industrial, and office machinery manufacturing	Non-Ag Industries
211	Optical instrument and lens manufacturing	Non-Ag Industries
212	Photographic and photocopying equipment manufacturing	Non-Ag Industries
213	Other commercial and service industry machinery manufacturing	Non-Ag Industries
214	Air purification and ventilation equipment manufacturing	Non-Ag Industries
215	Heating equipment (except warm air furnaces) manufacturing	Non-Ag Industries
216	Air conditioning, refrigeration, and warm air heating equipment manuf	Non-Ag Industries
217	Industrial mold manufacturing	Non-Ag Industries

## Appendix C, Continued

<b>IMPLAN Code</b>	<b>IMPLAN Description</b>	<b>Aggregated Description</b>
218	Metal cutting and forming machine tool manufacturing	Non-Ag Industries
219	Special tool, die, jig, and fixture manufacturing	Non-Ag Industries
220	Cutting tool and machine tool accessory manufacturing	Non-Ag Industries
221	Rolling mill and other metalworking machinery manufacturing	Non-Ag Industries
222	Turbine and turbine generator set units manufacturing	Non-Ag Industries
223	Speed changer, industrial high-speed drive, and gear manufacturing	Non-Ag Industries
224	Mechanical power transmission equipment manufacturing	Non-Ag Industries
225	Other engine equipment manufacturing	Non-Ag Industries
226	Pump and pumping equipment manufacturing	Non-Ag Industries
227	Air and gas compressor manufacturing	Non-Ag Industries
228	Material handling equipment manufacturing	Non-Ag Industries
229	Power-driven handtool manufacturing	Non-Ag Industries
230	Other general purpose machinery manufacturing	Non-Ag Industries
231	Packaging machinery manufacturing	Non-Ag Industries
232	Industrial process furnace and oven manufacturing	Non-Ag Industries
233	Fluid power process machinery	Non-Ag Industries
234	Electronic computer manufacturing	Non-Ag Industries
235	Computer storage device manufacturing	Non-Ag Industries
236	Computer terminals and other computer peripheral equipment manufa	Non-Ag Industries
237	Telephone apparatus manufacturing	Non-Ag Industries
238	Broadcast and wireless communications equipment	Non-Ag Industries
239	Other communications equipment manufacturing	Non-Ag Industries
240	Audio and video equipment manufacturing	Non-Ag Industries
241	Electron tube manufacturing	Non-Ag Industries
242	Bare printed circuit board manufacturing	Non-Ag Industries
243	Semiconductor and related device manufacturing	Non-Ag Industries
244	Electronic capacitor, resistor, coil, transformer, and other inductor ma	Non-Ag Industries
245	Electronic connector manufacturing	Non-Ag Industries
246	Printed circuit assembly (electronic assembly) manufacturing	Non-Ag Industries
247	Other electronic component manufacturing	Non-Ag Industries
248	Electromedical and electrotherapeutic apparatus manufacturing	Non-Ag Industries
249	Search, detection, and navigation instruments manufacturing	Non-Ag Industries
250	Automatic environmental control manufacturing	Non-Ag Industries
251	Industrial process variable instruments manufacturing	Non-Ag Industries
252	Totalizing fluid meters and counting devices manufacturing	Non-Ag Industries
253	Electricity and signal testing instruments manufacturing	Non-Ag Industries
254	Analytical laboratory instrument manufacturing	Non-Ag Industries
255	Irradiation apparatus manufacturing	Non-Ag Industries
256	Watch, clock, and other measuring and controlling device manufactur	Non-Ag Industries
257	Software, audio, and video media reproducing	Non-Ag Industries
258	Magnetic and optical recording media manufacturing	Non-Ag Industries
259	Electric lamp bulb and part manufacturing	Non-Ag Industries
260	Lighting fixture manufacturing	Non-Ag Industries
261	Small electrical appliance manufacturing	Non-Ag Industries

## Appendix C, Continued

<b>IMPLAN Code</b>	<b>IMPLAN Description</b>	<b>Aggregated Description</b>
262	Household cooking appliance manufacturing	Non-Ag Industries
263	Household refrigerator and home freezer manufacturing	Non-Ag Industries
264	Household laundry equipment manufacturing	Non-Ag Industries
265	Other major household appliance manufacturing	Non-Ag Industries
266	Power, distribution, and specialty transformer manufacturing	Non-Ag Industries
267	Motor and generator manufacturing	Non-Ag Industries
268	Switchgear and switchboard apparatus manufacturing	Non-Ag Industries
269	Relay and industrial control manufacturing	Non-Ag Industries
270	Storage battery manufacturing	Non-Ag Industries
271	Primary battery manufacturing	Non-Ag Industries
272	Communication and energy wire and cable manufacturing	Non-Ag Industries
273	Wiring device manufacturing	Non-Ag Industries
274	Carbon and graphite product manufacturing	Non-Ag Industries
275	All other miscellaneous electrical equipment and component manufac	Non-Ag Industries
276	Automobile manufacturing	Non-Ag Industries
277	Light truck and utility vehicle manufacturing	Non-Ag Industries
278	Heavy duty truck manufacturing	Non-Ag Industries
279	Motor vehicle body manufacturing	Non-Ag Industries
280	Truck trailer manufacturing	Non-Ag Industries
281	Motor home manufacturing	Non-Ag Industries
282	Travel trailer and camper manufacturing	Non-Ag Industries
283	Motor vehicle parts manufacturing	Non-Ag Industries
284	Aircraft manufacturing	Non-Ag Industries
285	Aircraft engine and engine parts manufacturing	Non-Ag Industries
286	Other aircraft parts and auxiliary equipment manufacturing	Non-Ag Industries
287	Guided missile and space vehicle manufacturing	Non-Ag Industries
288	Propulsion units and parts for space vehicles and guided missiles	Non-Ag Industries
289	Railroad rolling stock manufacturing	Non-Ag Industries
290	Ship building and repairing	Non-Ag Industries
291	Boat building	Non-Ag Industries
292	Motorcycle, bicycle, and parts manufacturing	Non-Ag Industries
293	Military armored vehicle, tank, and tank component manufacturing	Non-Ag Industries
294	All other transportation equipment manufacturing	Non-Ag Industries
295	Wood kitchen cabinet and countertop manufacturing	Non-Ag Industries
296	Upholstered household furniture manufacturing	Non-Ag Industries
297	Nonupholstered wood household furniture manufacturing	Non-Ag Industries
298	Metal and other household furniture (except wood) manufacturing <sup>1</sup>	Non-Ag Industries
299	Institutional furniture manufacturing	Non-Ag Industries
300	Wood television, radio, and sewing machine cabinet manufacturing <sup>1</sup>	Non-Ag Industries
301	Office furniture and custom architectural woodwork and millwork man	Non-Ag Industries
302	Showcase, partition, shelving, and locker manufacturing	Non-Ag Industries
303	Mattress manufacturing	Non-Ag Industries
304	Blind and shade manufacturing	Non-Ag Industries
305	Surgical and medical instrument manufacturing	Non-Ag Industries

## Appendix C, Continued

<b>IMPLAN Code</b>	<b>IMPLAN Description</b>	<b>Aggregated Description</b>
306	Surgical appliance and supplies manufacturing	Non-Ag Industries
307	Dental equipment and supplies manufacturing	Non-Ag Industries
308	Ophthalmic goods manufacturing	Non-Ag Industries
309	Dental laboratories	Non-Ag Industries
310	Jewelry and silverware manufacturing	Non-Ag Industries
311	Sporting and athletic goods manufacturing	Non-Ag Industries
312	Doll, toy, and game manufacturing	Non-Ag Industries
313	Office supplies (except paper) manufacturing	Non-Ag Industries
314	Sign manufacturing	Non-Ag Industries
315	Gasket, packing, and sealing device manufacturing	Non-Ag Industries
316	Musical instrument manufacturing	Non-Ag Industries
317	All other miscellaneous manufacturing	Non-Ag Industries
318	Broom, brush, and mop manufacturing	Non-Ag Industries
319	Wholesale trade	Non-Ag Industries
320	Retail - Motor vehicle and parts	Non-Ag Industries
321	Retail - Furniture and home furnishings	Non-Ag Industries
322	Retail - Electronics and appliances	Non-Ag Industries
323	Retail - Building material and garden supply	Non-Ag Industries
324	Retail - Food and beverage	Non-Ag Industries
325	Retail - Health and personal care	Non-Ag Industries
326	Retail - Gasoline stations	Non-Ag Industries
327	Retail - Clothing and clothing accessories	Non-Ag Industries
328	Retail - Sporting goods, hobby, book and music	Non-Ag Industries
329	Retail - General merchandise	Non-Ag Industries
330	Retail - Miscellaneous	Non-Ag Industries
331	Retail - Nonstore	Non-Ag Industries
332	Air transportation	Non-Ag Industries
333	Rail transportation	Non-Ag Industries
334	Water transportation	Non-Ag Industries
335	Truck transportation	Non-Ag Industries
336	Transit and ground passenger transportation	Non-Ag Industries
337	Pipeline transportation	Non-Ag Industries
338	Scenic and sightseeing transportation and support activities for transp	Non-Ag Industries
339	Couriers and messengers	Non-Ag Industries
340	Warehousing and storage	Non-Ag Industries
341	Newspaper publishers	Non-Ag Industries
342	Periodical publishers	Non-Ag Industries
343	Book publishers	Non-Ag Industries
344	Directory, mailing list, and other publishers	Non-Ag Industries
345	Software publishers	Non-Ag Industries
346	Motion picture and video industries	Non-Ag Industries
347	Sound recording industries	Non-Ag Industries
348	Radio and television broadcasting	Non-Ag Industries
349	Cable and other subscription programming	Non-Ag Industries

## Appendix C, Continued

<b>IMPLAN Code</b>	<b>IMPLAN Description</b>	<b>Aggregated Description</b>
350	Internet publishing and broadcasting	Non-Ag Industries
351	Telecommunications	Non-Ag Industries
352	Data processing, hosting, and related services	Non-Ag Industries
353	Other information services	Non-Ag Industries
354	Monetary authorities and depository credit intermediation	Non-Ag Industries
355	Nondepository credit intermediation and related activities	Non-Ag Industries
356	Securities, commodity contracts, investments, and related activities	Non-Ag Industries
357	Insurance carriers	Non-Ag Industries
358	Insurance agencies, brokerages, and related activities	Non-Ag Industries
359	Funds, trusts, and other financial vehicles	Non-Ag Industries
360	Real estate	Non-Ag Industries
361	Imputed rental value for owner-occupied dwellings	Non-Ag Industries
362	Automotive equipment rental and leasing	Non-Ag Industries
363	General and consumer goods rental except video tapes and discs	Non-Ag Industries
364	Video tape and disc rental	Non-Ag Industries
365	Commercial and industrial machinery and equipment rental and leasing	Non-Ag Industries
366	Lessors of nonfinancial intangible assets	Non-Ag Industries
367	Legal services	Non-Ag Industries
368	Accounting, tax preparation, bookkeeping, and payroll services	Non-Ag Industries
369	Architectural, engineering, and related services	Non-Ag Industries
370	Specialized design services	Non-Ag Industries
371	Custom computer programming services	Non-Ag Industries
372	Computer systems design services	Non-Ag Industries
373	Other computer related services, including facilities management	Non-Ag Industries
374	Management, scientific, and technical consulting services	Non-Ag Industries
375	Environmental and other technical consulting services	Non-Ag Industries
376	Scientific research and development services	Non-Ag Industries
377	Advertising and related services	Non-Ag Industries
378	Photographic services	Non-Ag Industries
380	All other miscellaneous professional, scientific, and technical services	Non-Ag Industries
381	Management of companies and enterprises	Non-Ag Industries
382	Employment services	Non-Ag Industries
383	Travel arrangement and reservation services	Non-Ag Industries
384	Office administrative services	Non-Ag Industries
385	Facilities support services	Non-Ag Industries
386	Business support services	Non-Ag Industries
387	Investigation and security services	Non-Ag Industries
388	Services to buildings and dwellings	Non-Ag Industries
389	Other support services	Non-Ag Industries
390	Waste management and remediation services	Non-Ag Industries
391	Elementary and secondary schools	Non-Ag Industries
392	Junior colleges, colleges, universities, and professional schools	Non-Ag Industries
393	Other educational services	Non-Ag Industries
394	Offices of physicians, dentists, and other health practitioners	Non-Ag Industries

## Appendix C, Continued

<b>IMPLAN Code</b>	<b>IMPLAN Description</b>	<b>Aggregated Description</b>
395	Home health care services	Non-Ag Industries
396	Medical and diagnostic labs and outpatient and other ambulatory care	Non-Ag Industries
397	Hospitals	Non-Ag Industries
398	Nursing and residential care facilities	Non-Ag Industries
399	Child day care services	Non-Ag Industries
400	Individual and family services	Non-Ag Industries
401	Community food, housing, and other relief services, including rehabilit	Non-Ag Industries
402	Performing arts companies	Non-Ag Industries
403	Spectator sports	Non-Ag Industries
404	Promoters of performing arts and sports and agents for public figures	Non-Ag Industries
405	Independent artists, writers, and performers	Non-Ag Industries
406	Museums, historical sites, zoos, and parks	Non-Ag Industries
407	Fitness and recreational sports centers	Non-Ag Industries
408	Bowling centers	Non-Ag Industries
409	Amusement parks, arcades, and gambling industries	Non-Ag Industries
410	Other amusement and recreation industries	Non-Ag Industries
411	Hotels and motels, including casino hotels	Non-Ag Industries
412	Other accommodations	Non-Ag Industries
413	Food services and drinking places	Non-Ag Industries
414	Automotive repair and maintenance, except car washes	Non-Ag Industries
415	Car washes	Non-Ag Industries
416	Electronic and precision equipment repair and maintenance	Non-Ag Industries
417	Commercial and industrial machinery and equipment repair and maint	Non-Ag Industries
418	Personal and household goods repair and maintenance	Non-Ag Industries
419	Personal care services	Non-Ag Industries
420	Death care services	Non-Ag Industries
421	Dry-cleaning and laundry services	Non-Ag Industries
422	Other personal services	Non-Ag Industries
423	Religious organizations	Non-Ag Industries
424	Grantmaking, giving, and social advocacy organizations	Non-Ag Industries
425	Civic, social, professional, and similar organizations	Non-Ag Industries
426	Private households	Non-Ag Industries
427	Postal service	Non-Ag Industries
428	Federal electric utilities	Non-Ag Industries
429	Other Federal Government enterprises	Non-Ag Industries
430	State and local government passenger transit	Non-Ag Industries
431	State and local government electric utilities	Non-Ag Industries
432	Other state and local government enterprises	Non-Ag Industries
433	*Not an industry (Used and secondhand goods)	Non-Ag Industries
434	*Not an industry (Scrap)	Non-Ag Industries
435	*Not an industry (Rest of the world adjustment)	Non-Ag Industries
436	*Not an industry (Noncomparable imports)	Non-Ag Industries
437	Employment and payroll for SL Government Non-Education	Non-Ag Industries
438	Employment and payroll for SL Government Education	Non-Ag Industries
439	Employment and payroll for Federal Non-Military	Non-Ag Industries
440	Employment and payroll for Federal Military	Non-Ag Industries

## Appendix D, IMPLAN Aggregated Agriculture Aggregation Template

<b>IMPLAN Code</b>	<b>IMPLAN Description</b>	<b>Aggregated Description</b>
1	Oilseed farming	Crops
2	Grain farming	Crops
3	Vegetable and melon farming	Crops
4	Fruit farming	Crops
5	Tree nut farming	Crops
6	Greenhouse, nursery, and floriculture production	Crops
7	Tobacco farming	Crops
8	Cotton farming	Crops
9	Sugarcane and sugar beet farming	Crops
10	All other crop farming	Crops
15	Forest nurseries, forest products, and timber tracts	Crops
16	Logging	Crops
43	Flour milling and malt manufacturing	Crops
44	Wet corn milling	Crops
45	Soybean and other oilseed processing	Crops
48	Sugar cane mills and refining	Crops
49	Beet sugar manufacturing	Crops
54	Fruit and vegetable canning, pickling, and drying	Crops
11	Cattle ranching and farming	Livestock
12	Dairy cattle and milk production	Livestock
13	Poultry and egg production	Livestock
14	Animal production, except cattle and poultry and eggs	Livestock
17	Fishing	Livestock
18	Hunting and trapping	Livestock
55	Fluid milk and butter manufacturing	Livestock
56	Cheese manufacturing	Livestock
57	Dry, condensed, and evaporated dairy product manufacturing	Livestock
58	Ice cream and frozen dessert manufacturing	Livestock
59	Animal (except poultry) slaughtering, rendering, and processing	Livestock
60	Poultry processing	Livestock
61	Seafood product preparation and packaging	Livestock
19	Support activities for agriculture and forestry	Other Ag
41	Dog and cat food manufacturing	Other Ag
42	Other animal food manufacturing	Other Ag
46	Fats and oils refining and blending	Other Ag
47	Breakfast cereal manufacturing	Other Ag
50	Chocolate and confectionery manufacturing from cacao beans	Other Ag
51	Confectionery manufacturing from purchased chocolate	Other Ag
52	Nonchocolate confectionery manufacturing	Other Ag
53	Frozen food manufacturing	Other Ag
62	Bread and bakery product manufacturing	Other Ag
63	Cookie, cracker, and pasta manufacturing	Other Ag
64	Tortilla manufacturing	Other Ag
65	Snack food manufacturing	Other Ag
66	Coffee and tea manufacturing	Other Ag
67	Flavoring syrup and concentrate manufacturing	Other Ag
68	Seasoning and dressing manufacturing	Other Ag
69	All other food manufacturing	Other Ag
70	Soft drink and ice manufacturing	Other Ag
71	Breweries	Other Ag
72	Wineries	Other Ag
73	Distilleries	Other Ag

## Appendix D, Continued

<b>IMPLAN Code</b>	<b>IMPLAN Description</b>	<b>Aggregated Description</b>
74	Tobacco product manufacturing	Other Ag
126	Other basic organic chemical manufacturing	Other Ag
130	Fertilizer manufacturing	Other Ag
131	Pesticide and other agricultural chemical manufacturing	Other Ag
203	Farm machinery and equipment manufacturing	Other Ag
379	Veterinary services	Other Ag
20	Oil and gas extraction	Mining
21	Coal mining	Mining
22	Iron ore mining	Mining
23	Copper, nickel, lead, and zinc mining	Mining
24	Gold, silver, and other metal ore mining	Mining
25	Stone mining and quarrying	Mining
26	Sand, gravel, clay, and ceramic and refractory minerals mining and	Mining
27	Other nonmetallic mineral mining and quarrying	Mining
28	Drilling oil and gas wells	Mining
29	Support activities for oil and gas operations	Mining
30	Support activities for other mining	Mining
31	Electric power generation, transmission, and distribution	Utilities
32	Natural gas distribution	Utilities
33	Water, sewage and other systems	Utilities
34	Construction of new nonresidential commercial and health care struc	Construction
35	Construction of new nonresidential manufacturing structures	Construction
36	Construction of other new nonresidential structures	Construction
37	Construction of new residential permanent site single- and multi-fami	Construction
38	Construction of other new residential structures	Construction
39	Maintenance and repair construction of nonresidential maintenance	Construction
40	Maintenance and repair construction of residential structures	Construction
75	Fiber, yarn, and thread mills	Manufacturing
76	Broadwoven fabric mills	Manufacturing
77	Narrow fabric mills and schiffli machine embroidery	Manufacturing
78	Nonwoven fabric mills	Manufacturing
79	Knit fabric mills	Manufacturing
80	Textile and fabric finishing mills	Manufacturing
81	Fabric coating mills	Manufacturing
82	Carpet and rug mills	Manufacturing
83	Curtain and linen mills	Manufacturing
84	Textile bag and canvas mills	Manufacturing
85	All other textile product mills	Manufacturing
86	Apparel knitting mills	Manufacturing
87	Cut and sew apparel contractors	Manufacturing
88	Men's and boys' cut and sew apparel manufacturing	Manufacturing
89	Women's and girls' cut and sew apparel manufacturing	Manufacturing
90	Other cut and sew apparel manufacturing	Manufacturing
91	Apparel accessories and other apparel manufacturing	Manufacturing
92	Leather and hide tanning and finishing	Manufacturing
93	Footwear manufacturing	Manufacturing
94	Other leather and allied product manufacturing	Manufacturing
95	Sawmills and wood preservation	Manufacturing
96	Veneer and plywood manufacturing	Manufacturing
97	Engineered wood member and truss manufacturing	Manufacturing
98	Reconstituted wood product manufacturing	Manufacturing
99	Wood windows and doors and millwork	Manufacturing

## Appendix D, Continued

<b>IMPLAN Code</b>	<b>IMPLAN Description</b>	<b>Aggregated Description</b>
100	Wood container and pallet manufacturing	Manufacturing
101	Manufactured home (mobile home) manufacturing	Manufacturing
102	Prefabricated wood building manufacturing	Manufacturing
103	All other miscellaneous wood product manufacturing	Manufacturing
104	Pulp mills	Manufacturing
105	Paper mills	Manufacturing
106	Paperboard Mills	Manufacturing
107	Paperboard container manufacturing	Manufacturing
108	Coated and laminated paper, packaging paper and plastics film ma	Manufacturing
109	All other paper bag and coated and treated paper manufacturing	Manufacturing
110	Stationery product manufacturing	Manufacturing
111	Sanitary paper product manufacturing	Manufacturing
112	All other converted paper product manufacturing	Manufacturing
115	Petroleum refineries	Manufacturing
116	Asphalt paving mixture and block manufacturing	Manufacturing
117	Asphalt shingle and coating materials manufacturing	Manufacturing
118	Petroleum lubricating oil and grease manufacturing	Manufacturing
119	All other petroleum and coal products manufacturing	Manufacturing
120	Petrochemical manufacturing	Manufacturing
121	Industrial gas manufacturing	Manufacturing
122	Synthetic dye and pigment manufacturing	Manufacturing
123	Alkalies and chlorine manufacturing	Manufacturing
124	Carbon black manufacturing	Manufacturing
125	All other basic inorganic chemical manufacturing	Manufacturing
127	Plastics material and resin manufacturing	Manufacturing
128	Synthetic rubber manufacturing	Manufacturing
129	Artificial and synthetic fibers and filaments manufacturing	Manufacturing
132	Medicinal and botanical manufacturing	Manufacturing
133	Pharmaceutical preparation manufacturing	Manufacturing
134	In-vitro diagnostic substance manufacturing	Manufacturing
135	Biological product (except diagnostic) manufacturing	Manufacturing
136	Paint and coating manufacturing	Manufacturing
137	Adhesive manufacturing	Manufacturing
138	Soap and cleaning compound manufacturing	Manufacturing
139	Toilet preparation manufacturing	Manufacturing
140	Printing ink manufacturing	Manufacturing
141	All other chemical product and preparation manufacturing	Manufacturing
142	Plastics packaging materials and unlaminated film and sheet manuf	Manufacturing
143	Unlaminated plastics profile shape manufacturing	Manufacturing
144	Plastics pipe and pipe fitting manufacturing	Manufacturing
145	Laminated plastics plate, sheet (except packaging), and shape mar	Manufacturing
146	Polystyrene foam product manufacturing	Manufacturing
147	Urethane and other foam product (except polystyrene) manufacturin	Manufacturing
148	Plastics bottle manufacturing	Manufacturing
149	Other plastics product manufacturing	Manufacturing
150	Tire manufacturing	Manufacturing
151	Rubber and plastics hoses and belting manufacturing	Manufacturing
152	Other rubber product manufacturing	Manufacturing
153	Pottery, ceramics, and plumbing fixture manufacturing	Manufacturing
154	Brick, tile, and other structural clay product manufacturing	Manufacturing
155	Clay and nonclay refractory manufacturing	Manufacturing
156	Flat glass manufacturing	Manufacturing

## Appendix D, Continued

<b>IMPLAN Code</b>	<b>IMPLAN Description</b>	<b>Aggregated Description</b>
157	Other pressed and blown glass and glassware manufacturing	Manufacturing
158	Glass container manufacturing	Manufacturing
159	Glass product manufacturing made of purchased glass	Manufacturing
160	Cement manufacturing	Manufacturing
161	Ready-mix concrete manufacturing	Manufacturing
162	Concrete pipe, brick, and block manufacturing	Manufacturing
163	Other concrete product manufacturing	Manufacturing
164	Lime and gypsum product manufacturing	Manufacturing
165	Abrasive product manufacturing	Manufacturing
166	Cut stone and stone product manufacturing	Manufacturing
167	Ground or treated mineral and earth manufacturing	Manufacturing
168	Mineral wool manufacturing	Manufacturing
169	Miscellaneous nonmetallic mineral products	Manufacturing
170	Iron and steel mills and ferroalloy manufacturing	Manufacturing
171	Steel product manufacturing from purchased steel	Manufacturing
172	Alumina refining and primary aluminum production	Manufacturing
173	Secondary smelting and alloying of aluminum	Manufacturing
174	Aluminum product manufacturing from purchased aluminum	Manufacturing
175	Primary smelting and refining of copper	Manufacturing
176	Primary smelting and refining of nonferrous metal (except copper and	Manufacturing
177	Copper rolling, drawing, extruding and alloying	Manufacturing
178	Nonferrous metal (except copper and aluminum) rolling, drawing, extr	Manufacturing
179	Ferrous metal foundries	Manufacturing
180	Nonferrous metal foundries	Manufacturing
181	All other forging, stamping, and sintering	Manufacturing
182	Custom roll forming	Manufacturing
183	Crown and closure manufacturing and metal stamping	Manufacturing
184	Cutlery, utensil, pot, and pan manufacturing	Manufacturing
185	Handtool manufacturing	Manufacturing
186	Plate work and fabricated structural product manufacturing	Manufacturing
187	Ornamental and architectural metal products manufacturing	Manufacturing
188	Power boiler and heat exchanger manufacturing	Manufacturing
189	Metal tank (heavy gauge) manufacturing	Manufacturing
190	Metal can, box, and other metal container (light gauge) manufacturing	Manufacturing
191	Ammunition manufacturing	Manufacturing
192	Arms, ordnance, and accessories manufacturing	Manufacturing
193	Hardware manufacturing	Manufacturing
194	Spring and wire product manufacturing	Manufacturing
195	Machine shops	Manufacturing
196	Turned product and screw, nut, and bolt manufacturing	Manufacturing
197	Coating, engraving, heat treating and allied activities	Manufacturing
198	Valve and fittings other than plumbing	Manufacturing
199	Plumbing fixture fitting and trim manufacturing	Manufacturing
200	Ball and roller bearing manufacturing	Manufacturing
201	Fabricated pipe and pipe fitting manufacturing	Manufacturing
202	Other fabricated metal manufacturing	Manufacturing
204	Lawn and garden equipment manufacturing	Manufacturing
205	Construction machinery manufacturing	Manufacturing
206	Mining and oil and gas field machinery manufacturing	Manufacturing
207	Other industrial machinery manufacturing	Manufacturing
208	Plastics and rubber industry machinery manufacturing	Manufacturing
209	Semiconductor machinery manufacturing	Manufacturing

## Appendix D, Continued

<b>IMPLAN Code</b>	<b>IMPLAN Description</b>	<b>Aggregated Description</b>
210	Vending, commercial, industrial, and office machinery manufacturing	Manufacturing
211	Optical instrument and lens manufacturing	Manufacturing
212	Photographic and photocopying equipment manufacturing	Manufacturing
213	Other commercial and service industry machinery manufacturing	Manufacturing
214	Air purification and ventilation equipment manufacturing	Manufacturing
215	Heating equipment (except warm air furnaces) manufacturing	Manufacturing
216	Air conditioning, refrigeration, and warm air heating equipment manu	Manufacturing
217	Industrial mold manufacturing	Manufacturing
218	Metal cutting and forming machine tool manufacturing	Manufacturing
219	Special tool, die, jig, and fixture manufacturing	Manufacturing
220	Cutting tool and machine tool accessory manufacturing	Manufacturing
221	Rolling mill and other metalworking machinery manufacturing	Manufacturing
222	Turbine and turbine generator set units manufacturing	Manufacturing
223	Speed changer, industrial high-speed drive, and gear manufacturing	Manufacturing
224	Mechanical power transmission equipment manufacturing	Manufacturing
225	Other engine equipment manufacturing	Manufacturing
226	Pump and pumping equipment manufacturing	Manufacturing
227	Air and gas compressor manufacturing	Manufacturing
228	Material handling equipment manufacturing	Manufacturing
229	Power-driven handtool manufacturing	Manufacturing
230	Other general purpose machinery manufacturing	Manufacturing
231	Packaging machinery manufacturing	Manufacturing
232	Industrial process furnace and oven manufacturing	Manufacturing
233	Fluid power process machinery	Manufacturing
234	Electronic computer manufacturing	Manufacturing
235	Computer storage device manufacturing	Manufacturing
236	Computer terminals and other computer peripheral equipment manu	Manufacturing
237	Telephone apparatus manufacturing	Manufacturing
238	Broadcast and wireless communications equipment	Manufacturing
239	Other communications equipment manufacturing	Manufacturing
240	Audio and video equipment manufacturing	Manufacturing
241	Electron tube manufacturing	Manufacturing
242	Bare printed circuit board manufacturing	Manufacturing
243	Semiconductor and related device manufacturing	Manufacturing
244	Electronic capacitor, resistor, coil, transformer, and other inductor ma	Manufacturing
245	Electronic connector manufacturing	Manufacturing
246	Printed circuit assembly (electronic assembly) manufacturing	Manufacturing
247	Other electronic component manufacturing	Manufacturing
248	Electromedical and electrotherapeutic apparatus manufacturing	Manufacturing
249	Search, detection, and navigation instruments manufacturing	Manufacturing
250	Automatic environmental control manufacturing	Manufacturing
251	Industrial process variable instruments manufacturing	Manufacturing
252	Totalizing fluid meters and counting devices manufacturing	Manufacturing
253	Electricity and signal testing instruments manufacturing	Manufacturing
254	Analytical laboratory instrument manufacturing	Manufacturing
255	Irradiation apparatus manufacturing	Manufacturing
256	Watch, clock, and other measuring and controlling device manufact	Manufacturing
257	Software, audio, and video media reproducing	Manufacturing
258	Magnetic and optical recording media manufacturing	Manufacturing
259	Electric lamp bulb and part manufacturing	Manufacturing
260	Lighting fixture manufacturing	Manufacturing
261	Small electrical appliance manufacturing	Manufacturing

## Appendix D, Continued

<b>IMPLAN Code</b>	<b>IMPLAN Description</b>	<b>Aggregated Description</b>
262	Household cooking appliance manufacturing	Manufacturing
263	Household refrigerator and home freezer manufacturing	Manufacturing
264	Household laundry equipment manufacturing	Manufacturing
265	Other major household appliance manufacturing	Manufacturing
266	Power, distribution, and specialty transformer manufacturing	Manufacturing
267	Motor and generator manufacturing	Manufacturing
268	Switchgear and switchboard apparatus manufacturing	Manufacturing
269	Relay and industrial control manufacturing	Manufacturing
270	Storage battery manufacturing	Manufacturing
271	Primary battery manufacturing	Manufacturing
272	Communication and energy wire and cable manufacturing	Manufacturing
273	Wiring device manufacturing	Manufacturing
274	Carbon and graphite product manufacturing	Manufacturing
275	All other miscellaneous electrical equipment and component manuf	Manufacturing
276	Automobile manufacturing	Manufacturing
277	Light truck and utility vehicle manufacturing	Manufacturing
278	Heavy duty truck manufacturing	Manufacturing
279	Motor vehicle body manufacturing	Manufacturing
280	Truck trailer manufacturing	Manufacturing
281	Motor home manufacturing	Manufacturing
282	Travel trailer and camper manufacturing	Manufacturing
283	Motor vehicle parts manufacturing	Manufacturing
284	Aircraft manufacturing	Manufacturing
285	Aircraft engine and engine parts manufacturing	Manufacturing
286	Other aircraft parts and auxiliary equipment manufacturing	Manufacturing
287	Guided missile and space vehicle manufacturing	Manufacturing
288	Propulsion units and parts for space vehicles and guided missiles	Manufacturing
289	Railroad rolling stock manufacturing	Manufacturing
290	Ship building and repairing	Manufacturing
291	Boat building	Manufacturing
292	Motorcycle, bicycle, and parts manufacturing	Manufacturing
293	Military armored vehicle, tank, and tank component manufacturing	Manufacturing
294	All other transportation equipment manufacturing	Manufacturing
295	Wood kitchen cabinet and countertop manufacturing	Manufacturing
296	Upholstered household furniture manufacturing	Manufacturing
297	Nonupholstered wood household furniture manufacturing	Manufacturing
298	Metal and other household furniture (except wood) manufacturing 1	Manufacturing
299	Institutional furniture manufacturing	Manufacturing
300	Wood television, radio, and sewing machine cabinet manufacturing 1	Manufacturing
301	Office furniture and custom architectural woodwork and millwork man	Manufacturing
302	Showcase, partition, shelving, and locker manufacturing	Manufacturing
303	Mattress manufacturing	Manufacturing
304	Blind and shade manufacturing	Manufacturing
305	Surgical and medical instrument manufacturing	Manufacturing
306	Surgical appliance and supplies manufacturing	Manufacturing
307	Dental equipment and supplies manufacturing	Manufacturing
308	Ophthalmic goods manufacturing	Manufacturing
309	Dental laboratories	Manufacturing
310	Jewelry and silverware manufacturing	Manufacturing
311	Sporting and athletic goods manufacturing	Manufacturing
312	Doll, toy, and game manufacturing	Manufacturing
313	Office supplies (except paper) manufacturing	Manufacturing

## Appendix D, Continued

<b>IMPLAN Code</b>	<b>IMPLAN Description</b>	<b>Aggregated Description</b>
314	Sign manufacturing	Manufacturing
315	Gasket, packing, and sealing device manufacturing	Manufacturing
316	Musical instrument manufacturing	Manufacturing
317	All other miscellaneous manufacturing	Manufacturing
318	Broom, brush, and mop manufacturing	Manufacturing
319	Wholesale trade	Wholesale
320	Retail - Motor vehicle and parts	Retail
321	Retail - Furniture and home furnishings	Retail
322	Retail - Electronics and appliances	Retail
323	Retail - Building material and garden supply	Retail
324	Retail - Food and beverage	Retail
325	Retail - Health and personal care	Retail
326	Retail - Gasoline stations	Retail
327	Retail - Clothing and clothing accessories	Retail
328	Retail - Sporting goods, hobby, book and music	Retail
329	Retail - General merchandise	Retail
330	Retail - Miscellaneous	Retail
331	Retail - Nonstore	Retail
332	Air transportation	Transportation
333	Rail transportation	Transportation
334	Water transportation	Transportation
335	Truck transportation	Transportation
336	Transit and ground passenger transportation	Transportation
337	Pipeline transportation	Transportation
338	Scenic and sightseeing transportation and support activities for trans	Transportation
339	Couriers and messengers	Transportation
341	Newspaper publishers	Information
342	Periodical publishers	Information
343	Book publishers	Information
344	Directory, mailing list, and other publishers	Information
345	Software publishers	Information
346	Motion picture and video industries	Information
347	Sound recording industries	Information
348	Radio and television broadcasting	Information
349	Cable and other subscription programming	Information
350	Internet publishing and broadcasting	Information
351	Telecommunications	Information
352	Data processing, hosting, and related services	Information
353	Other information services	Information
354	Monetary authorities and depository credit intermediation	Financial
355	Nondepository credit intermediation and related activities	Financial
356	Securities, commodity contracts, investments, and related activities	Financial
357	Insurance carriers	Financial
358	Insurance agencies, brokerages, and related activities	Financial
359	Funds, trusts, and other financial vehicles	Financial
360	Real estate	Financial
113	Printing	Services
114	Support activities for printing	Services
340	Warehousing and storage	Services
362	Automotive equipment rental and leasing	Services
363	General and consumer goods rental except video tapes and discs	Services
364	Video tape and disc rental	Services

## Appendix D, Continued

<b>IMPLAN Code</b>	<b>IMPLAN Description</b>	<b>Aggregated Description</b>
365	Commercial and industrial machinery and equipment rental and lease	Services
366	Lessors of nonfinancial intangible assets	Services
367	Legal services	Services
368	Accounting, tax preparation, bookkeeping, and payroll services	Services
369	Architectural, engineering, and related services	Services
370	Specialized design services	Services
371	Custom computer programming services	Services
372	Computer systems design services	Services
373	Other computer related services, including facilities management	Services
374	Management, scientific, and technical consulting services	Services
375	Environmental and other technical consulting services	Services
376	Scientific research and development services	Services
377	Advertising and related services	Services
378	Photographic services	Services
380	All other miscellaneous professional, scientific, and technical services	Services
381	Management of companies and enterprises	Services
382	Employment services	Services
383	Travel arrangement and reservation services	Services
384	Office administrative services	Services
385	Facilities support services	Services
386	Business support services	Services
387	Investigation and security services	Services
388	Services to buildings and dwellings	Services
389	Other support services	Services
390	Waste management and remediation services	Services
391	Elementary and secondary schools	Services
392	Junior colleges, colleges, universities, and professional schools	Services
393	Other educational services	Services
394	Offices of physicians, dentists, and other health practitioners	Services
395	Home health care services	Services
396	Medical and diagnostic labs and outpatient and other ambulatory care	Services
397	Hospitals	Services
398	Nursing and residential care facilities	Services
399	Child day care services	Services
400	Individual and family services	Services
401	Community food, housing, and other relief services, including rehabilitation	Services
411	Hotels and motels, including casino hotels	Services
412	Other accommodations	Services
413	Food services and drinking places	Services
414	Automotive repair and maintenance, except car washes	Services
415	Car washes	Services
416	Electronic and precision equipment repair and maintenance	Services
417	Commercial and industrial machinery and equipment repair and maintenance	Services
418	Personal and household goods repair and maintenance	Services
419	Personal care services	Services
420	Death care services	Services
421	Dry-cleaning and laundry services	Services
422	Other personal services	Services
423	Religious organizations	Services
424	Grantmaking, giving, and social advocacy organizations	Services
425	Civic, social, professional, and similar organizations	Services
426	Private households	Services

## Appendix D, Continued

<b>IMPLAN Code</b>	<b>IMPLAN Description</b>	<b>Aggregated Description</b>
402	Performing arts companies	Entertainment
403	Spectator sports	Entertainment
404	Promoters of performing arts and sports and agents for public figures	Entertainment
405	Independent artists, writers, and performers	Entertainment
406	Museums, historical sites, zoos, and parks	Entertainment
407	Fitness and recreational sports centers	Entertainment
408	Bowling centers	Entertainment
409	Amusement parks, arcades, and gambling industries	Entertainment
410	Other amusement and recreation industries	Entertainment
427	Postal service	Government
428	Federal electric utilities	Government
429	Other Federal Government enterprises	Government
430	State and local government passenger transit	Government
431	State and local government electric utilities	Government
432	Other state and local government enterprises	Government
437	Employment and payroll for SL Government Non-Education	Government
438	Employment and payroll for SL Government Education	Government
439	Employment and payroll for Federal Non-Military	Government
440	Employment and payroll for Federal Military	Government
361	Imputed rental value for owner-occupied dwellings	Remainder
433	*Not an industry (Used and secondhand goods)	Remainder
434	*Not an industry (Scrap)	Remainder
435	*Not an industry (Rest of the world adjustment)	Remainder
436	*Not an industry (Noncomparable imports)	Remainder