

# Summary Measures of the Economic Importance of Agri-food Industries in Iowa County, Iowa

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This summary report provides county-level statistics for Iowa County, Iowa as a supplement to *The Economic Importance of Agri-food Industries in Iowa*<sup>1</sup> (hereafter referred to as the "state report"). Throughout this summary, local data will be presented that reflects the data provided in the state report. Brief descriptions of the data will be provided along with references back to the state report for more detailed explanations of the data and its use.

Table 1 shows that Iowa County had 1,024 farms in 2002. These farms averaged 332 acres apiece compared to an average of 350 acres per farm, statewide. Nationwide, farms are generally larger than in Iowa. The average US farm included 441 acres in 2002. The estimated market value of land and buildings per farm in Iowa County was \$648,374 in 2002, compared to \$808,152 for Iowa and \$604,403, nationwide. In 2002, Iowa County farms marketed an average of \$129,877 worth of farm products according to the US Census of Agriculture.

Table 1. Iowa County Farm Statistics from the US Census of Agriculture

	Iowa County		Iowa		United States	
	2002	1997	2002	1997	2002	1997
Number of farms	1,024	1,049	90,655	96,705	2,128,982	2,215,876
Land in farms (acres)	340,163	342,196	31,729,490	32,313,119	938,279,056	954,752,502
Average farm size (acres)	332	326	350	334	441	431
Market value, per farm, of						
Land and buildings (\$)	548,590	455,391	707,730	559,678	537,833	416,007
Machinery and equipment (\$)	99,784	71,233	100,422	79,607	66,570	53,861
Farm products sold (\$)	129,877	101,105	135,388	125,766	94,245	90,880

Table 2 shows employment data for Iowa County and the state of Iowa compiled within a framework used by the US Department of Agriculture (USDA) to identify a broad range of farm and farm-related employment. These numbers are a reduced set of the statistics provided as Table 4 in the state report. The USDA compiles these employment numbers annually for each of the 50 states<sup>2</sup>. For this summary, we have used the USDA classification system and data from the US Bureau of Economic Analysis and the Iowa Department of Workforce Development to generate similar results for Iowa County. Detail is restricted in this summary, due to the smaller employment base and privacy issues at the county level.

<sup>1</sup> Mark Imerman, David Swenson, Liesl Eathington, Daniel Otto. Iowa State University Department of Economics. 2005.

<sup>2</sup> The USDA's definition of farm-related industries includes all food-based businesses through retailing and restaurants. Substantial portions of packaging manufacture, of gravel and lime extraction, and apparel manufacturing are also included. A discussion of the implications of the breadth of this framework is included on pages 6-9 of the state report.

Table 2. USDA-style Compilation of 2002 Farm and Farm-related Employment (Jobs)

	Iowa County			Iowa	
	Jobs	County total	As a percent of State Category	Jobs	% of state total
Farm and closely-related	1,756	12.87	0.87	201,967	10.57
Peripherally-related	1,758	12.88	0.92	191,669	10.04
Total farm and farm-related	3,514	25.76	0.89	393,636	20.61
Total employment	13,643	100.00	0.71	1,909,934	100.00

Data derived from the US Bureau of Economic Analysis and the Iowa Department of Workforce Development within a framework obtained from the USDA.

Tables 3 and 4 estimate the value of a more restricted definition of the agri-food industries for Iowa County. These tables are consistent with Tables 5 and 6 in the state report. Estimates included in these tables limit the agri-food industries to ag production (traditional farm production and nonfarm production facilities), food and other primary farm commodity processing, and ag input manufacturing (machinery, ag chemicals, and fertilizer)<sup>3</sup>.

Table 3 provides value estimates for an industry-only aggregation of the economic activity that takes place within Iowa County's borders. Output is the value of total in-county production for each industry in 2002. Value-added is the value that was added to Output by each industry's in-county production process. The difference between Output and Value-added is the value of purchased inputs that go into the production process. For individual industries, these inputs may be sourced from out-of-county or from within the county. Value-added represents the value of Output minus the value of purchased inputs. Table 3 also provides an estimate of jobs<sup>4</sup> and labor income (compensation for employees and proprietors) within the agri-food industries in Iowa County.

Table 3 shows that, in 2002, the total output value of Iowa County's agricultural production industry was \$101.468 million. \$34.827 million of this output (34.32 percent of the total output value) was the value added to the output by Iowa County's ag production activity (ag production's value added). The remainder came from purchased inputs into the process (from either in-county or out-of-county sources). 50.68 percent of this value added, or \$17.652 million, was paid out as compensation to the 1,200 production agriculture jobs in Iowa County.

<sup>3</sup> Estimates were generated through a process of recompiling and analyzing statistics derived from the IMPLAN database system maintained by MIG, Inc. A detailed discussion of the estimates presented here, the differences between the two tables, and how they can be interpreted is provided in pages 9 through 17 of the state report.

<sup>4</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.

Table 3. Industry-only Estimation Based on IMPLAN and Census Data

<b>Iowa County</b>			<b>Labor</b>	<b>Value-Added</b>	
<b>Agricultural Production</b>	<b>Output*</b>	<b>Jobs</b>	<b>Income*</b>	<b>Value*</b>	<b>Pct. Of Tot.</b>
Oilseeds	20.273	185	6.657	10.900	1.53
Grain	35.468	488	8.406	16.062	2.26
Other Crops	5.922	23	1.158	3.156	0.44
Cattle	23.051	150	0.012	1.654	0.23
Poultry	0.601	1	0.071	0.196	0.03
Hogs and Pigs	13.730	297	0.682	2.132	0.30
Other Ag Production	2.423	56	0.666	0.727	0.10
<b>Sum of Ag Production</b>	<b>101.468</b>	<b>1,200</b>	<b>17.652</b>	<b>34.827</b>	<b>4.89</b>
<b>Primary Food Processing</b>					
Crop	0.000	0	0.000	0.000	0.00
Dairy	0.000	0	0.000	0.000	0.00
Meat	0.000	0	0.000	0.000	0.00
<b>Sum of Primary Food Proc.</b>	<b>0.000</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.00</b>
<b>Other Food/Ag Processing</b>					
Animal and Pet Foods	9.118	18	0.635	0.901	0.13
Other Food Processing	11.971	51	1.872	3.993	0.56
<b>Sum of Other Ag Proc.</b>	<b>21.089</b>	<b>69</b>	<b>2.507</b>	<b>4.894</b>	<b>0.69</b>
<b>Ag Input Manufacturing</b>					
Ag Chemical and Fertilizer	0.000	0	0.000	0.000	0.00
Farm Machinery	290.859	506	161.139	181.207	25.46
<b>Sum of Ag Input Mfg.</b>	<b>290.859</b>	<b>506</b>	<b>161.139</b>	<b>181.207</b>	<b>25.46</b>
<b>Sum of All Agri-food Ind.</b>	<b>413.416</b>	<b>1,775</b>	<b>181.298</b>	<b>220.928</b>	<b>31.04</b>
<b>NonAg Industries</b>	<b>1,176.396</b>	<b>10,298</b>	<b>338.176</b>	<b>490.807</b>	<b>68.96</b>
<b>Totals</b>	<b>1,589.812</b>	<b>12,073</b>	<b>519.474</b>	<b>711.735</b>	<b>100.00</b>

\* Numbers represent millions of dollars

If we add food and other ag processing and ag input manufacturing to agricultural production, the value of Iowa County's agri-food industry output was \$413.416 million, or 26.00 percent of Iowa County's total industrial production. Of this, \$220.928 million (53.44 percent) was value added within these industries in Iowa County. \$181.298 million of this value added was paid out as wages and salaries to the 1,775 agri-food industry jobs in the county.

Overall, Table 3 shows that Iowa County's agri-food industries directly accounted for 26.00 percent of the county's total output, 31.04 percent of total value added, 34.90 percent of labor income, and 14.70 percent of the county's jobs<sup>5</sup>.

<sup>5</sup> It is unusual but possible for counties to have negative output, value-added, and labor income values in some categories, resulting in negative percents of totals. Where this happens, it is generally due to write-downs of assets and proprietor interests due to firm closings or bankruptcies, market situations where output must be sold at less than production costs, or reverse flows of incomes, pensions, or benefits.

Table 4. Industry-of-output aggregation including local inputs

Iowa County	Value Added				
	As a Percent of				
	Nonhousehold				
Agricultural Production	Output*	Income*	Value Added*	Total V.A.	Demand
Oilseeds	25.220	9.470	14.096	1.98	2.05
Grain	39.801	12.254	19.422	2.73	2.82
Other Crops	0.813	0.247	0.448	0.06	0.07
Cattle	32.028	3.475	7.042	0.99	1.02
Poultry	0.390	0.084	0.148	0.02	0.02
Hogs and Pigs	18.562	2.667	5.040	0.71	0.73
Other Ag Production	2.345	0.337	0.637	0.09	0.09
<b>Sum of Ag Production</b>	<b>119.158</b>	<b>28.534</b>	<b>46.832</b>	<b>6.58</b>	<b>6.81</b>
<b>Primary Food Processing</b>					
Crop	0.000	0.000	0.000	0.00	0.00
Dairy	0.000	0.000	0.000	0.00	0.00
Meat	0.000	0.000	0.000	0.00	0.00
<b>Sum of Primary Food Proc.</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.00</b>	<b>0.00</b>
<b>Other Food/Ag Processing</b>					
Animal and Pet Foods	11.913	1.597	2.516	0.35	0.37
Other Food Processing	13.929	3.095	5.394	0.76	0.78
<b>Sum of Other Ag Proc.</b>	<b>25.841</b>	<b>4.692</b>	<b>7.909</b>	<b>1.11</b>	<b>1.15</b>
<b>Ag Input Manufacturing</b>					
Ag Chemical and Fertilizer	0.000	0.000	0.000	0.00	0.00
Farm Machinery	368.818	186.857	229.796	32.29	33.42
<b>Sum of Ag Input Mfg.</b>	<b>368.818</b>	<b>186.857</b>	<b>229.796</b>	<b>32.29</b>	<b>33.42</b>
<b>Sum of All Agri-food Ind.</b>	<b>513.817</b>	<b>220.083</b>	<b>284.537</b>	<b>39.98</b>	<b>41.38</b>
<b>NonAg Industries</b>	<b>1,038.761</b>	<b>279.157</b>	<b>403.001</b>	<b>56.62</b>	<b>58.62</b>
<b>Household Consumption</b>	<b>37.235</b>	<b>127.338</b>	<b>24.197</b>	<b>3.40</b>	<b>3.52</b>
<b>Totals</b>	<b>1,589.812</b>	<b>626.578</b>	<b>711.735</b>	<b>100.00</b>	<b>103.52</b>

\* Numbers represent millions of dollars

Table 4 shows a different aggregation of the county's industrial output. Table 4 is derived from the same data as is Table 3, and total values for Table 4 are identical to total values for Table 3. The difference is the point at which values were counted. In Table 3, values were counted in each industry where productive activity took place. In Table 4, values were counted at the industry that made the final export (out-of-county) sale of goods and services produced<sup>6</sup>. This is final demand analysis. It helps illustrate the magnitude of inter-industrial linkages and the value of those linkages to local income generation from export sales<sup>7</sup>.

<sup>6</sup> Goods not sold out of county were counted under the heading of "Household Consumption" and not in industry totals in Table 4.

<sup>7</sup> The point at which final products are sold out-of-county was chosen as an endpoint because it coincides with the point at which industrial output brings revenue into the county. This point also avoids problems

Table 4 reallocates all industrial activity in the county to the sectors producing goods for sale beyond the county's borders (export sale). This means that if there is a local meat packer that purchases all of its live cattle from local 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 locally produced farm machinery purchased for use on local farms is not included in the aggregation under farm machinery, but is subsumed under agricultural production (and partially subsumed, again, into food processing if the farm output that it was used to produce passes through local food processors on its journey to final sale outside of the county). In a nutshell, the output, value-added, and income estimates in Table 4 estimate the total share of the local economic activity utilized to generate final output from the agri-food sectors.

Under this aggregation, the total exported output value of locally produced goods and services supporting Iowa County's agricultural production industry was \$119.158 million. \$46.832 million of this output (39.30 percent of the total output value) was the value added to the output by economic activity within Iowa County (value added). The remainder came from inputs purchased from out-of-county sources. 60.93 percent of this value added, or \$28.534 million, was paid out as personal income to residents of Iowa County that were involved (as workers, owners, investors, etc) in these activities.

If we add food and other ag processing and ag input manufacturing to agricultural production, the export value of goods and services supporting Iowa County's agri-food industry output was \$513.817 million, or 32.32 percent of Iowa County's total industrial production. Of this, \$284.537 million (55.38 percent) was value added within these industries in Iowa County. \$220.083 million of this value added was paid out as personal income.

Overall, Table 4 shows that exports from Iowa County's agri-food industries accounted for 32.32 percent of the county's total output, 39.98 percent of total value added, and 35.12 percent of the county's personal income.

Table 5. Crop Statistics From the U.S. Census of Agriculture

	Iowa County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold*	132,994	106,060	12,273,634	12,162,165
Value of Crops Sold*	89,094	54,549	6,071,272	6,381,676
Total Cropland Harvested (acres)	217,380	216,911	23,994,343	24,008,826
Corn for grain	108,584	114,442	11,761,392	11,930,542
Corn for silage and green-chop	1,705	2,729	247,269	244,913
Soybeans	88,953	78,931	10,418,621	10,258,681
Oats	2,408	3,646	143,513	214,485
Harvested forage crops	17,386	(NA)	1,533,027	(NA)
Bushels harvested				
Corn	18,150,124	15,015,505	1,851,276,224	1,581,093,092
Soybeans	4,373,421	3,861,978	487,380,897	459,309,682
Oats	184,119	265,436	10,761,952	14,451,930

\* Values are in \$1,000s

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that would accompany trying to separate local household consumption between that which consumes local food products and that which consumes food products imported from outside the county.

Table 5 shows Iowa County crop inventories and sales for 1997 and 2002. State statistics are included for comparison. Table 6 provides similar information for Iowa County livestock. Data in both tables comes from the US Census of Agriculture. In both tables “(NA)” entries denote categories where data was not collected or compiled, and “(D)” entries designate that data was collected but results were suppressed to comply with personal disclosure restrictions.

Table 6. Livestock Statistics From the U.S. Census of Agriculture

	Iowa County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold	132,994	106,060	12,273,634	12,162,165
Value of Livestock and Livestock Products Sold*	43,900	51,511	6,202,362	5,780,489
<b>Hogs and Pigs</b>				
Total inventory	101,104	131,441	15,486,531	14,513,319
Inventory of breeding stock	8,047	10,040	1,145,323	1,354,166
Number sold	265,707	225,298	41,232,492	27,340,921
Value of sales*	18,871	28,300	3,078,455	3,012,764
<b>Cattle and Calves</b>				
Total inventory	44,095	44,875	3,535,945	3,717,394
Beef cows	16,110	16,723	987,670	1,051,178
Milk cows	783	1,014	206,965	222,090
Number sold	29,785	31,411	2,929,704	2,936,978
Value of sales*	22,260	20,436	2,119,935	1,886,416
Value of Dairy Products Sold*	1,653	1,838	442,431	407,897
<b>Poultry and Poultry Products</b>				
Value of sales*	640	581	511,949	414,587
Inventory of layers 20 weeks and older	1,095	858	38,650,210	21,514,768
Broiler and meat-type chicken inventory	207	1,354	1,730,091	1,023,349
Broiler and meat-type chickens sold	2,580	485	9,558,127	6,919,963
Turkey inventory	(D)	(D)	3,681,862	2,552,845
Turkeys sold	(D)	(D)	9,145,415	7,279,822
<b>Sheep and Goats and Related Products</b>				
Value of sales	193	(NA)	23,366	(NA)
Inventory of sheep and lambs	4,072	2,145	249,908	272,913
Number of sheep and lambs sold	3,129	2,563	257,130	326,868

\* Values are in \$1,000s

The first three data columns of Table 7 show aggregated annual earnings in thousands of dollars from farm employment, nonfarm employment, and totals employment in Iowa County from 1990 through 2003. The values are not adjusted for inflation. Note that nonfarm earnings steadily rise throughout the period. Total earnings rise, but with somewhat more variation. Farm earnings swing significantly from year-to-year. This is typical of earnings in economies with a substantial ag production sector.

The final three data columns of Table 7 show the data again. In Table 7, however, the data is differenced year-by-year. Entries for 1991, for example, are the difference between, change from, 1990 to 1991. Positive numbers denote unadjusted growth. Negative numbers denote unadjusted decline. This representation shows that nonfarm earnings tend to be growing over time, causing total earnings to trend upward over time. The variability in this growth, however, is strongly associated with the variability of farm earnings. This is due to the weather and market factors that make production agriculture returns highly variable (which is also true of many basic mining industries).

While ag production's growth in most areas is limited by the availability of suitable land, its variability has a substantial effect upon rural areas. Even in urbanized areas, the difference between a good earnings year and a bad earnings year is often heavily influenced by conditions affecting agricultural production and marketing.

A more detailed state-level discussion and illustrations are included in the state report on pages 22 through 24.

Table 7. Annual Earnings and Annual Earnings Changes

Year	Annual County Earnings by Source			Annual Changes in County Earnings		
	Farm	Nonfarm	Total	Farm	Nonfarm	Total
1990	21,462	197,039	218,501	(NA)	(NA)	(NA)
1991	16,381	222,067	238,448	-5,081	25,028	19,947
1992	25,287	247,895	273,182	8,906	25,828	34,734
1993	10,377	266,013	276,390	-14,910	18,118	3,208
1994	27,552	284,983	312,535	17,175	18,970	36,145
1995	11,121	287,902	299,023	-16,431	2,919	-13,512
1996	27,222	306,479	333,701	16,101	18,577	34,678
1997	33,134	346,931	380,065	5,912	40,452	46,364
1998	21,767	372,213	393,980	-11,367	25,282	13,915
1999	12,261	417,808	430,069	-9,506	45,595	36,089
2000	14,724	384,627	399,351	2,463	-33,181	-30,718
2001	14,489	381,928	396,417	-235	-2,699	-2,934
2002	18,145	402,478	420,623	3,656	20,550	24,206
2003	12,388	421,192	433,580	-5,757	18,714	12,957

Data from the US Bureau of Economic Analysis