

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

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This summary report provides county-level statistics for Johnson County, Iowa as a supplement to *The Economic Importance of Agri-food Industries in Iowa*¹ (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 Johnson County had 1,261 farms in 2002. These farms averaged 239 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 Johnson County was \$619,145 in 2002, compared to \$808,152 for Iowa and \$604,403, nationwide. In 2002, Johnson County farms marketed an average of \$82,971 worth of farm products according to the US Census of Agriculture.

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

	Johnson County		Iowa		United States	
	2002	1997	2002	1997	2002	1997
Number of farms	1,261	1,369	90,655	96,705	2,128,982	2,215,876
Land in farms (acres)	300,882	299,120	31,729,490	32,313,119	938,279,056	954,752,502
Average farm size (acres)	239	218	350	334	441	431
Market value, per farm, of						
Land and buildings (\$)	546,917	400,502	707,730	559,678	537,833	416,007
Machinery and equipment (\$)	72,228	53,662	100,422	79,607	66,570	53,861
Farm products sold (\$)	82,971	73,597	135,388	125,766	94,245	90,880

Table 2 shows employment data for Johnson 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 states². 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 Johnson County. Detail is restricted in this summary, due to the smaller employment base and privacy issues at the county level.

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

² 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)

	Johnson County			Iowa	
	Jobs	County total	As a percent of State Category	Jobs	% of state total
Farm and closely-related	1,955	2.10	0.97	201,967	10.57
Peripherally-related	8,772	9.40	4.58	191,669	10.04
Total farm and farm-related	10,727	11.50	2.73	393,636	20.61
Total employment	93,271	100.00	4.88	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 Johnson 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)³.

Table 3 provides value estimates for an industry-only aggregation of the economic activity that takes place within Johnson 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 jobs⁴ and labor income (compensation for employees and proprietors) within the agri-food industries in Johnson County.

Table 3 shows that, in 2002, the total output value of Johnson County's agricultural production industry was \$108.531 million. \$38.556 million of this output (35.53 percent of the total output value) was the value added to the output by Johnson 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). 47.04 percent of this value added, or \$18.137 million, was paid out as compensation to the 1,483 production agriculture jobs in Johnson County.

³ 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.

⁴ 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

Johnson County			Labor	Value-Added	
Agricultural Production	Output*	Jobs	Income*	Value*	Pct. Of Tot.
Oilseeds	19.877	210	6.519	10.687	0.26
Grain	34.453	547	8.099	15.602	0.38
Other Crops	9.687	46	1.927	5.475	0.13
Cattle	15.616	117	-0.062	1.128	0.03
Poultry	6.871	15	0.778	2.243	0.06
Hogs and Pigs	16.038	399	0.638	2.491	0.06
Other Ag Production	5.989	149	0.238	0.930	0.02
Sum of Ag Production	108.531	1,483	18.137	38.556	0.95
Primary Food Processing					
Crop	6.781	17	0.442	0.787	0.02
Dairy	92.425	187	9.006	12.018	0.29
Meat	0.000	0	0.000	0.000	0.00
Sum of Primary Food Proc.	99.206	204	9.448	12.805	0.31
Other Food/Ag Processing					
Animal and Pet Foods	44.627	84	4.639	6.572	0.16
Other Food Processing	9.329	114	2.224	3.927	0.10
Sum of Other Ag Proc.	53.956	198	6.863	10.499	0.26
Ag Input Manufacturing					
Ag Chemical and Fertilizer	0.000	0	0.000	0.000	0.00
Farm Machinery	0.000	0	0.000	0.000	0.00
Sum of Ag Input Mfg.	0.000	0	0.000	0.000	0.00
Sum of All Agri-food Ind.	261.693	1,885	34.448	61.860	1.52
NonAg Industries	6,371.275	91,480	2,867.750	4,014.479	98.48
Totals	6,632.968	93,365	2,902.198	4,076.339	100.00

* Numbers represent millions of dollars

If we add food and other ag processing and ag input manufacturing to agricultural production, the value of Johnson County's agri-food industry output was \$261.693 million, or 3.95 percent of Johnson County's total industrial production. Of this, \$61.860 million (23.64 percent) was value added within these industries in Johnson County. \$34.448 million of this value added was paid out as wages and salaries to the 1,885 agri-food industry jobs in the county.

Overall, Table 3 shows that Johnson County's agri-food industries directly accounted for 3.95 percent of the county's total output, 1.52 percent of total value added, 1.19 percent of labor income, and 2.02 percent of the county's jobs⁵.

⁵ 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

Johnson County	Output*	Income*	Value Added*	Value Added As a Percent of Nonhousehold	
				Total V.A.	Demand
Agricultural Production					
Oilseeds	28.862	10.814	16.530	0.41	0.44
Grain	34.947	10.929	17.741	0.44	0.47
Other Crops	9.061	2.890	5.311	0.13	0.14
Cattle	0.304	0.033	0.068	0.00	0.00
Poultry	7.620	1.690	2.970	0.07	0.08
Hogs and Pigs	21.273	3.116	5.973	0.15	0.16
Other Ag Production	7.944	1.164	2.231	0.05	0.06
Sum of Ag Production	110.012	30.635	50.824	1.25	1.35
Primary Food Processing					
Crop	11.009	2.095	3.357	0.08	0.09
Dairy	107.533	15.062	23.590	0.58	0.63
Meat	0.000	0.000	0.000	0.00	0.00
Sum of Primary Food Proc.	118.543	17.157	26.946	0.66	0.72
Other Food/Ag Processing					
Animal and Pet Foods	61.400	10.805	16.314	0.40	0.43
Other Food Processing	5.119	1.529	2.423	0.06	0.06
Sum of Other Ag Proc.	66.520	12.335	18.737	0.46	0.50
Ag Input Manufacturing					
Ag Chemical and Fertilizer	0.000	0.000	0.000	0.00	0.00
Farm Machinery	0.000	0.000	0.000	0.00	0.00
Sum of Ag Input Mfg.	0.000	0.000	0.000	0.00	0.00
Sum of All Agri-food Ind.	295.074	60.127	96.507	2.37	2.57
NonAg Industries	5,830.597	2,650.427	3,658.576	89.75	97.43
Household Consumption	507.297	1,044.345	321.256	7.88	8.56
Totals	6,632.968	3,754.899	4,076.339	100.00	108.56

* 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 produced⁶. 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 sales⁷.

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

⁷ 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 Johnson County's agricultural production industry was \$110.012 million. \$50.824 million of this output (46.20 percent of the total output value) was the value added to the output by economic activity within Johnson County (value added). The remainder came from inputs purchased from out-of-county sources. 60.28 percent of this value added, or \$30.635 million, was paid out as personal income to residents of Johnson 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 Johnson County's agri-food industry output was \$295.074 million, or 4.45 percent of Johnson County's total industrial production. Of this, \$96.507 million (32.71 percent) was value added within these industries in Johnson County. \$60.127 million of this value added was paid out as personal income.

Overall, Table 4 shows that exports from Johnson County's agri-food industries accounted for 4.45 percent of the county's total output, 2.37 percent of total value added, and 1.60 percent of the county's personal income.

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

	Johnson County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold*	104,626	100,755	12,273,634	12,162,165
Value of Crops Sold*	56,728	51,538	6,071,272	6,381,676
Total Cropland Harvested (acres)	220,101	205,543	23,994,343	24,008,826
Corn for grain	103,550	99,124	11,761,392	11,930,542
Corn for silage and green-chop	2,068	2,219	247,269	244,913
Soybeans	89,026	77,242	10,418,621	10,258,681
Oats	4,653	5,051	143,513	214,485
Harvested forage crops	21,812	(NA)	1,533,027	(NA)
Bushels harvested				
Corn	17,361,916	13,188,169	1,851,276,224	1,581,093,092
Soybeans	4,288,046	3,657,863	487,380,897	459,309,682
Oats	341,011	346,481	10,761,952	14,451,930

* Values are in \$1,000s

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 Johnson County crop inventories and sales for 1997 and 2002. State statistics are included for comparison. Table 6 provides similar information for Johnson 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

	Johnson County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold	104,626	100,755	12,273,634	12,162,165
Value of Livestock and Livestock Products Sold*	47,898	49,217	6,202,362	5,780,489
Hogs and Pigs				
Total inventory	136,034	133,170	15,486,531	14,513,319
Inventory of breeding stock	11,559	13,439	1,145,323	1,354,166
Number sold	253,619	228,384	41,232,492	27,340,921
Value of sales*	21,505	27,397	3,078,455	3,012,764
Cattle and Calves				
Total inventory	34,437	38,579	3,535,945	3,717,394
Beef cows	10,966	12,533	987,670	1,051,178
Milk cows	2,758	3,032	206,965	222,090
Number sold	22,104	20,931	2,929,704	2,936,978
Value of sales*	15,080	12,337	2,119,935	1,886,416
Value of Dairy Products Sold*	5,527	5,486	442,431	407,897
Poultry and Poultry Products				
Value of sales*	4,135	2,446	511,949	414,587
Inventory of layers 20 weeks and older	226,535	64,083	38,650,210	21,514,768
Broiler and meat-type chicken inventory	7,847	4,048	1,730,091	1,023,349
Broiler and meat-type chickens sold	31,322	10,537	9,558,127	6,919,963
Turkey inventory	19,618	35,214	3,681,862	2,552,845
Turkeys sold	73,900	111,361	9,145,415	7,279,822
Sheep and Goats and Related Products				
Value of sales	632	(NA)	23,366	(NA)
Inventory of sheep and lambs	5,214	5,755	249,908	272,913
Number of sheep and lambs sold	5,275	7,103	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 Johnson 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	26,231	1,477,350	1,503,581	(NA)	(NA)	(NA)
1991	17,290	1,566,005	1,583,295	-8,941	88,655	79,714
1992	21,930	1,668,040	1,689,970	4,640	102,035	106,675
1993	7,235	1,773,217	1,780,452	-14,695	105,177	90,482
1994	24,277	1,916,151	1,940,428	17,042	142,934	159,976
1995	6,581	2,010,430	2,017,011	-17,696	94,279	76,583
1996	24,568	2,090,951	2,115,519	17,987	80,521	98,508
1997	28,978	2,190,298	2,219,276	4,410	99,347	103,757
1998	16,215	2,381,448	2,397,663	-12,763	191,150	178,387
1999	9,985	2,606,651	2,616,636	-6,230	225,203	218,973
2000	11,020	2,883,256	2,894,276	1,035	276,605	277,640
2001	13,136	3,013,566	3,026,702	2,116	130,310	132,426
2002	13,071	3,164,791	3,177,862	-65	151,225	151,160
2003	5,850	3,350,284	3,356,134	-7,221	185,493	178,272

Data from the US Bureau of Economic Analysis