

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

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This summary report provides county-level statistics for Jackson 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 Jackson County had 1,336 farms in 2002. These farms averaged 261 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 Jackson County was \$492,317 in 2002, compared to \$808,152 for Iowa and \$604,403, nationwide. In 2002, Jackson County farms marketed an average of \$80,011 worth of farm products according to the US Census of Agriculture.

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

	Jackson County		Iowa		United States	
	2002	1997	2002	1997	2002	1997
Number of farms	1,336	1,368	90,655	96,705	2,128,982	2,215,876
Land in farms (acres)	348,814	346,548	31,729,490	32,313,119	938,279,056	954,752,502
Average farm size (acres)	261	253	350	334	441	431
Market value, per farm, of						
Land and buildings (\$)	425,523	292,406	707,730	559,678	537,833	416,007
Machinery and equipment (\$)	66,794	55,032	100,422	79,607	66,570	53,861
Farm products sold (\$)	80,011	71,433	135,388	125,766	94,245	90,880

Table 2 shows employment data for Jackson 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 Jackson 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)

	Jackson County			Iowa	
	Jobs	County total	As a percent of State Category	Jobs	% of state total
Farm and closely-related	1,647	15.10	0.82	201,967	10.57
Peripherally-related	800	7.33	0.42	191,669	10.04
Total farm and farm-related	2,447	22.44	0.62	393,636	20.61
Total employment	10,907	100.00	0.57	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 Jackson 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 Jackson 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 Jackson County.

Table 3 shows that, in 2002, the total output value of Jackson County's agricultural production industry was \$138.191 million. \$37.905 million of this output (27.43 percent of the total output value) was the value added to the output by Jackson 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). 39.59 percent of this value added, or \$15.008 million, was paid out as compensation to the 1,574 production agriculture jobs in Jackson 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

Jackson County			Labor	Value-Added	
Agricultural Production	Output*	Jobs	Income*	Value*	Pct. Of Tot.
Oilseeds	9.370	113	3.066	5.038	1.12
Grain	26.237	478	6.091	11.882	2.65
Other Crops	15.145	76	2.638	8.061	1.80
Cattle	49.174	423	-0.529	3.592	0.80
Poultry	12.336	30	1.293	4.027	0.90
Hogs and Pigs	10.726	306	0.266	1.666	0.37
Other Ag Production	15.203	148	2.183	3.639	0.81
Sum of Ag Production	138.191	1,574	15.008	37.905	8.46
Primary Food Processing					
Crop	0.000	0	0.000	0.000	0.00
Dairy	0.000	0	0.000	0.000	0.00
Meat	0.434	2	0.054	0.066	0.01
Sum of Primary Food Proc.	0.434	2	0.054	0.066	0.01
Other Food/Ag Processing					
Animal and Pet Foods	12.182	24	0.919	1.307	0.29
Other Food Processing	0.000	0	0.000	0.000	0.00
Sum of Other Ag Proc.	12.182	24	0.919	1.307	0.29
Ag Input Manufacturing					
Ag Chemical and Fertilizer	0.000	0	0.000	0.000	0.00
Farm Machinery	140.231	81	105.019	107.651	24.03
Sum of Ag Input Mfg.	140.231	81	105.019	107.651	24.03
Sum of All Agri-food Ind.	291.038	1,681	121.000	146.929	32.80
NonAg Industries	637.423	7,693	199.233	301.020	67.20
Totals	928.461	9,374	320.233	447.949	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 Jackson County's agri-food industry output was \$291.038 million, or 31.35 percent of Jackson County's total industrial production. Of this, \$146.929 million (50.48 percent) was value added within these industries in Jackson County. \$121.000 million of this value added was paid out as wages and salaries to the 1,681 agri-food industry jobs in the county.

Overall, Table 3 shows that Jackson County's agri-food industries directly accounted for 31.35 percent of the county's total output, 32.80 percent of total value added, 37.78 percent of labor income, and 17.93 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

Jackson County	Value Added				
	As a Percent of				
				Total V.A.	Nonhousehold Demand
Agricultural Production	Output*	Income*	Value Added*		
Oilseeds	11.618	4.653	6.394	1.43	1.63
Grain	26.434	8.732	12.633	2.82	3.21
Other Crops	2.904	0.977	1.573	0.35	0.40
Cattle	70.660	8.653	15.625	3.49	3.97
Poultry	14.571	3.458	5.368	1.20	1.37
Hogs and Pigs	14.861	2.320	3.986	0.89	1.01
Other Ag Production	17.290	3.561	4.912	1.10	1.25
Sum of Ag Production	158.338	32.354	50.492	11.27	12.84
Primary Food Processing					
Crop	0.000	0.000	0.000	0.00	0.00
Dairy	0.000	0.000	0.000	0.00	0.00
Meat	0.051	0.008	0.011	0.00	0.00
Sum of Primary Food Proc.	0.051	0.008	0.011	0.00	0.00
Other Food/Ag Processing					
Animal and Pet Foods	15.249	2.077	2.936	0.66	0.75
Other Food Processing	0.000	0.000	0.000	0.00	0.00
Sum of Other Ag Proc.	15.249	2.077	2.936	0.66	0.75
Ag Input Manufacturing					
Ag Chemical and Fertilizer	0.000	0.000	0.000	0.00	0.00
Farm Machinery	182.863	118.612	132.353	29.55	33.66
Sum of Ag Input Mfg.	182.863	118.612	132.353	29.55	33.66
Sum of All Agri-food Ind.	356.501	153.052	185.792	41.48	47.25
NonAg Industries	481.944	156.954	207.436	46.31	52.75
Household Consumption	90.016	283.111	54.720	12.22	13.92
Totals	928.461	593.117	447.949	100.00	113.92

* 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 Jackson County's agricultural production industry was \$158.338 million. \$50.492 million of this output (31.89 percent of the total output value) was the value added to the output by economic activity within Jackson County (value added). The remainder came from inputs purchased from out-of-county sources. 64.08 percent of this value added, or \$32.354 million, was paid out as personal income to residents of Jackson 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 Jackson County's agri-food industry output was \$356.501 million, or 38.40 percent of Jackson County's total industrial production. Of this, \$185.792 million (52.12 percent) was value added within these industries in Jackson County. \$153.052 million of this value added was paid out as personal income.

Overall, Table 4 shows that exports from Jackson County's agri-food industries accounted for 38.40 percent of the county's total output, 41.48 percent of total value added, and 25.80 percent of the county's personal income.

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

	Jackson County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold*	106,895	97,720	12,273,634	12,162,165
Value of Crops Sold*	33,269	27,833	6,071,272	6,381,676
Total Cropland Harvested (acres)	170,281	170,644	23,994,343	24,008,826
Corn for grain	81,651	92,917	11,761,392	11,930,542
Corn for silage and green-chop	3,859	4,971	247,269	244,913
Soybeans	41,854	19,869	10,418,621	10,258,681
Oats	5,199	8,357	143,513	214,485
Harvested forage crops	41,454	(NA)	1,533,027	(NA)
Bushels harvested				
Corn	13,250,407	11,757,496	1,851,276,224	1,581,093,092
Soybeans	2,021,383	954,241	487,380,897	459,309,682
Oats	344,955	537,969	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 Jackson County crop inventories and sales for 1997 and 2002. State statistics are included for comparison. Table 6 provides similar information for Jackson 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

	Jackson County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold	106,895	97,720	12,273,634	12,162,165
Value of Livestock and Livestock Products Sold*	73,626	69,887	6,202,362	5,780,489
Hogs and Pigs				
Total inventory	66,605	84,527	15,486,531	14,513,319
Inventory of breeding stock	5,226	9,637	1,145,323	1,354,166
Number sold	148,421	159,963	41,232,492	27,340,921
Value of sales*	11,438	17,481	3,078,455	3,012,764
Cattle and Calves				
Total inventory	92,027	91,157	3,535,945	3,717,394
Beef cows	26,674	26,117	987,670	1,051,178
Milk cows	5,797	7,695	206,965	222,090
Number sold	64,891	57,378	2,929,704	2,936,978
Value of sales*	47,486	36,586	2,119,935	1,886,416
Value of Dairy Products Sold*	10,960	12,732	442,431	407,897
Poultry and Poultry Products				
Value of sales*	(D)	(D)	511,949	414,587
Inventory of layers 20 weeks and older	(D)	(D)	38,650,210	21,514,768
Broiler and meat-type chicken inventory	6,828	837	1,730,091	1,023,349
Broiler and meat-type chickens sold	(D)	2,150	9,558,127	6,919,963
Turkey inventory	(D)	179	3,681,862	2,552,845
Turkeys sold	(D)	140	9,145,415	7,279,822
Sheep and Goats and Related Products				
Value of sales	(D)	(NA)	23,366	(NA)
Inventory of sheep and lambs	2,126	2,534	249,908	272,913
Number of sheep and lambs sold	1,284	2,421	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 Jackson 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	18,556	131,684	150,240	(NA)	(NA)	(NA)
1991	4,862	135,888	140,750	-13,694	4,204	-9,490
1992	9,731	143,243	152,974	4,869	7,355	12,224
1993	1,003	150,233	151,236	-8,728	6,990	-1,738
1994	12,967	157,721	170,688	11,964	7,488	19,452
1995	3,381	154,857	158,238	-9,586	-2,864	-12,450
1996	17,959	158,270	176,229	14,578	3,413	17,991
1997	18,251	169,714	187,965	292	11,444	11,736
1998	14,183	176,286	190,469	-4,068	6,572	2,504
1999	12,030	184,224	196,254	-2,153	7,938	5,785
2000	13,806	187,281	201,087	1,776	3,057	4,833
2001	9,998	192,345	202,343	-3,808	5,064	1,256
2002	11,096	204,990	216,086	1,098	12,645	13,743
2003	9,402	208,978	218,380	-1,694	3,988	2,294

Data from the US Bureau of Economic Analysis