

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

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This summary report provides county-level statistics for Adams 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 Adams County had 567 farms in 2002. These farms averaged 419 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 Adams County was \$590,746 in 2002, compared to \$808,152 for Iowa and \$604,403, nationwide. In 2002, Adams County farms marketed an average of \$89,833 worth of farm products according to the US Census of Agriculture.

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

	Adams County		Iowa		United States	
	2002	1997	2002	1997	2002	1997
Number of farms	567	608	90,655	96,705	2,128,982	2,215,876
Land in farms (acres)	237,824	243,735	31,729,490	32,313,119	938,279,056	954,752,502
Average farm size (acres)	419	401	350	334	441	431
Market value, per farm, of						
Land and buildings (\$)	538,843	376,990	707,730	559,678	537,833	416,007
Machinery and equipment (\$)	51,903	66,293	100,422	79,607	66,570	53,861
Farm products sold (\$)	89,833	83,074	135,388	125,766	94,245	90,880

Table 2 shows employment data for Adams 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 Adams 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)

	Adams County			Iowa	
	Jobs	County total	As a percent of State Category	Jobs	% of state total
Farm and closely-related	704	25.43	0.35	201,967	10.57
Peripherally-related	130	4.70	0.07	191,669	10.04
Total farm and farm-related	834	30.13	0.21	393,636	20.61
Total employment	2,767	100.00	0.14	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 Adams 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 Adams 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 Adams County.

Table 3 shows that, in 2002, the total output value of Adams County's agricultural production industry was \$51.679 million. \$17.785 million of this output (34.41 percent of the total output value) was the value added to the output by Adams 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). 52.34 percent of this value added, or \$9.308 million, was paid out as compensation to the 700 production agriculture jobs in Adams 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

Adams County			Labor	Value-Added	
Agricultural Production	Output*	Jobs	Income*	Value*	Pct. Of Tot.
Oilseeds	11.312	141	3.732	6.082	7.47
Grain	15.310	288	3.724	6.934	8.51
Other Crops	4.698	25	1.061	2.531	3.11
Cattle	14.689	130	0.221	1.029	1.26
Poultry	1.921	5	0.263	0.627	0.77
Hogs and Pigs	3.431	102	0.281	0.533	0.65
Other Ag Production	0.318	9	0.026	0.049	0.06
Sum of Ag Production	51.679	700	9.308	17.785	21.84
Primary Food Processing					
Crop	0.000	0	0.000	0.000	0.00
Dairy	0.000	0	0.000	0.000	0.00
Meat	6.264	19	1.059	1.544	1.90
Sum of Primary Food Proc.	6.264	19	1.059	1.544	1.90
Other Food/Ag Processing					
Animal and Pet Foods	0.000	0	0.000	0.000	0.00
Other Food Processing	0.000	0	0.000	0.000	0.00
Sum of Other Ag Proc.	0.000	0	0.000	0.000	0.00
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.	57.943	719	10.367	19.329	23.73
NonAg Industries	115.869	1,549	41.889	62.115	76.27
Totals	173.812	2,268	52.256	81.444	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 Adams County's agri-food industry output was \$57.943 million, or 33.34 percent of Adams County's total industrial production. Of this, \$19.329 million (33.36 percent) was value added within these industries in Adams County. \$10.367 million of this value added was paid out as wages and salaries to the 719 agri-food industry jobs in the county.

Overall, Table 3 shows that Adams County's agri-food industries directly accounted for 33.34 percent of the county's total output, 23.73 percent of total value added, 19.84 percent of labor income, and 31.70 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

Adams County	Output*	Income*	Value Added*	Value Added As a Percent of Nonhousehold	
				Total V.A.	Demand
Agricultural Production					
Oilseeds	14.391	5.850	8.018	9.84	12.06
Grain	17.906	6.091	8.714	10.70	13.11
Other Crops	1.146	0.413	0.636	0.78	0.96
Cattle	17.980	2.496	4.168	5.12	6.27
Poultry	2.381	0.610	0.914	1.12	1.38
Hogs and Pigs	4.070	0.748	1.157	1.42	1.74
Other Ag Production	0.377	0.069	0.107	0.13	0.16
Sum of Ag Production	58.251	16.277	23.713	29.12	35.68
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	10.099	1.904	2.823	3.47	4.25
Sum of Primary Food Proc.	10.099	1.904	2.823	3.47	4.25
Other Food/Ag Processing					
Animal and Pet Foods	0.000	0.000	0.000	0.00	0.00
Other Food Processing	0.000	0.000	0.000	0.00	0.00
Sum of Other Ag Proc.	0.000	0.000	0.000	0.00	0.00
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.	68.350	18.181	26.536	32.58	39.93
NonAg Industries	81.530	30.330	39.927	49.02	60.07
Household Consumption	23.932	60.110	14.981	18.39	22.54
Totals	173.812	108.621	81.444	100.00	122.54

* 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 Adams County's agricultural production industry was \$58.251 million. \$23.713 million of this output (40.71 percent of the total output value) was the value added to the output by economic activity within Adams County (value added). The remainder came from inputs purchased from out-of-county sources. 68.64 percent of this value added, or \$16.277 million, was paid out as personal income to residents of Adams 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 Adams County's agri-food industry output was \$68.350 million, or 39.32 percent of Adams County's total industrial production. Of this, \$26.536 million (38.82 percent) was value added within these industries in Adams County. \$18.181 million of this value added was paid out as personal income.

Overall, Table 4 shows that exports from Adams County's agri-food industries accounted for 39.32 percent of the county's total output, 32.58 percent of total value added, and 16.74 percent of the county's personal income.

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

	Adams County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold*	50,935	50,509	12,273,634	12,162,165
Value of Crops Sold*	28,340	26,077	6,071,272	6,381,676
Total Cropland Harvested (acres)	134,308	128,291	23,994,343	24,008,826
Corn for grain	60,020	55,365	11,761,392	11,930,542
Corn for silage and green-chop	1,571	1,341	247,269	244,913
Soybeans	56,925	55,038	10,418,621	10,258,681
Oats	1,522	1,779	143,513	214,485
Harvested forage crops	15,835	(NA)	1,533,027	(NA)
Bushels harvested				
Corn	7,827,147	6,349,193	1,851,276,224	1,581,093,092
Soybeans	2,440,301	2,267,201	487,380,897	459,309,682
Oats	104,109	116,027	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 Adams County crop inventories and sales for 1997 and 2002. State statistics are included for comparison. Table 6 provides similar information for Adams 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

	Adams County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold	50,935	50,509	12,273,634	12,162,165
Value of Livestock and Livestock Products Sold*	22,595	24,432	6,202,362	5,780,489
Hogs and Pigs				
Total inventory	25,256	58,642	15,486,531	14,513,319
Inventory of breeding stock	419	2,503	1,145,323	1,354,166
Number sold	71,602	76,310	41,232,492	27,340,921
Value of sales*	5,567	9,517	3,078,455	3,012,764
Cattle and Calves				
Total inventory	31,926	41,414	3,535,945	3,717,394
Beef cows	(D)	17,106	987,670	1,051,178
Milk cows	(D)	177	206,965	222,090
Number sold	22,300	23,872	2,929,704	2,936,978
Value of sales*	14,185	13,571	2,119,935	1,886,416
Value of Dairy Products Sold*	387	203	442,431	407,897
Poultry and Poultry Products				
Value of sales*	2,382	1,041	511,949	414,587
Inventory of layers 20 weeks and older	93	2,057	38,650,210	21,514,768
Broiler and meat-type chicken inventory	256,310	(D)	1,730,091	1,023,349
Broiler and meat-type chickens sold	1,485,222	610,000	9,558,127	6,919,963
Turkey inventory	(D)	-	3,681,862	2,552,845
Turkeys sold	(D)	-	9,145,415	7,279,822
Sheep and Goats and Related Products				
Value of sales	55	(NA)	23,366	(NA)
Inventory of sheep and lambs	661	838	249,908	272,913
Number of sheep and lambs sold	614	824	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 Adams 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	11,879	33,267	45,146	(NA)	(NA)	(NA)
1991	10,586	34,771	45,357	-1,293	1,504	211
1992	12,960	36,092	49,052	2,374	1,321	3,695
1993	3,975	38,726	42,701	-8,985	2,634	-6,351
1994	12,990	41,125	54,115	9,015	2,399	11,414
1995	-1,067	43,038	41,971	-14,057	1,913	-12,144
1996	15,688	41,607	57,295	16,755	-1,431	15,324
1997	14,868	42,982	57,850	-820	1,375	555
1998	8,909	45,297	54,206	-5,959	2,315	-3,644
1999	3,220	51,388	54,608	-5,689	6,091	402
2000	8,536	52,262	60,798	5,316	874	6,190
2001	3,577	46,812	50,389	-4,959	-5,450	-10,409
2002	4,402	47,144	51,546	825	332	1,157
2003	2,025	50,264	52,289	-2,377	3,120	743

Data from the US Bureau of Economic Analysis