

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

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This summary report provides county-level statistics for Calhoun 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 Calhoun County had 762 farms in 2002. These farms averaged 447 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 Calhoun County was \$1,219,586 in 2002, compared to \$808,152 for Iowa and \$604,403, nationwide. In 2002, Calhoun County farms marketed an average of \$184,459 worth of farm products according to the US Census of Agriculture.

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

	Calhoun County		Iowa		United States	
	2002	1997	2002	1997	2002	1997
Number of farms	762	829	90,655	96,705	2,128,982	2,215,876
Land in farms (acres)	340,739	345,828	31,729,490	32,313,119	938,279,056	954,752,502
Average farm size (acres)	447	417	350	334	441	431
Market value, per farm, of						
Land and buildings (\$)	1,071,168	986,121	707,730	559,678	537,833	416,007
Machinery and equipment (\$)	148,418	115,525	100,422	79,607	66,570	53,861
Farm products sold (\$)	184,459	171,764	135,388	125,766	94,245	90,880

Table 2 shows employment data for Calhoun 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 Calhoun 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)

	Calhoun County			Iowa	
	Jobs	County total	As a percent of State Category	Jobs	% of state total
Farm and closely-related	949	16.28	0.47	201,967	10.57
Peripherally-related	313	5.38	0.16	191,669	10.04
Total farm and farm-related	1,263	21.66	0.32	393,636	20.61
Total employment	5,830	100.00	0.31	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 Calhoun 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 Calhoun 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 Calhoun County.

Table 3 shows that, in 2002, the total output value of Calhoun County's agricultural production industry was \$130.558 million. \$47.017 million of this output (36.01 percent of the total output value) was the value added to the output by Calhoun 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). 53.25 percent of this value added, or \$25.034 million, was paid out as compensation to the 1,079 production agriculture jobs in Calhoun 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

Calhoun County		Labor		Value-Added	
Agricultural Production	Output*	Jobs	Income*	Value*	Pct. Of Tot.
Oilseeds	33.768	193	11.105	18.155	9.55
Grain	49.980	430	11.939	22.634	11.91
Other Crops	1.030	3	0.232	0.596	0.31
Cattle	17.569	72	0.085	1.251	0.66
Poultry	0.000	0	0.000	0.000	0.00
Hogs and Pigs	23.949	323	1.420	3.719	1.96
Other Ag Production	4.262	58	0.253	0.662	0.35
Sum of Ag Production	130.558	1,079	25.034	47.017	24.74
Primary Food Processing					
Crop	0.000	0	0.000	0.000	0.00
Dairy	0.000	0	0.000	0.000	0.00
Meat	3.709	11	0.200	0.240	0.13
Sum of Primary Food Proc.	3.709	11	0.200	0.240	0.13
Other Food/Ag Processing					
Animal and Pet Foods	0.000	0	0.000	0.000	0.00
Other Food Processing	3.150	12	0.295	0.477	0.25
Sum of Other Ag Proc.	3.150	12	0.295	0.477	0.25
Ag Input Manufacturing					
Ag Chemical and Fertilizer	0.000	0	0.000	0.000	0.00
Farm Machinery	0.936	3	0.356	0.401	0.21
Sum of Ag Input Mfg.	0.936	3	0.356	0.401	0.21
Sum of All Agri-food Ind.	138.353	1,105	25.885	48.135	25.33
NonAg Industries	227.696	3,478	92.559	141.901	74.67
Totals	366.049	4,583	118.444	190.036	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 Calhoun County's agri-food industry output was \$138.353 million, or 37.80 percent of Calhoun County's total industrial production. Of this, \$48.135 million (34.79 percent) was value added within these industries in Calhoun County. \$25.885 million of this value added was paid out as wages and salaries to the 1,105 agri-food industry jobs in the county.

Overall, Table 3 shows that Calhoun County's agri-food industries directly accounted for 37.80 percent of the county's total output, 25.33 percent of total value added, 21.85 percent of labor income, and 24.11 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

Calhoun County	Value Added				
	As a Percent of				
	Nonhousehold				
Agricultural Production	Output*	Income*	Value Added*	Total V.A.	Demand
Oilseeds	42.930	18.015	24.004	12.63	15.73
Grain	58.853	20.795	28.790	15.15	18.86
Other Crops	0.274	0.109	0.161	0.08	0.11
Cattle	18.792	1.899	3.301	1.74	2.16
Poultry	0.000	0.000	0.000	0.00	0.00
Hogs and Pigs	29.437	4.683	7.280	3.83	4.77
Other Ag Production	5.239	0.834	1.296	0.68	0.85
Sum of Ag Production	155.524	46.335	64.831	34.12	42.48
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	4.566	0.458	0.700	0.37	0.46
Sum of Primary Food Proc.	4.566	0.458	0.700	0.37	0.46
Other Food/Ag Processing					
Animal and Pet Foods	0.000	0.000	0.000	0.00	0.00
Other Food Processing	3.274	0.566	0.793	0.42	0.52
Sum of Other Ag Proc.	3.274	0.566	0.793	0.42	0.52
Ag Input Manufacturing					
Ag Chemical and Fertilizer	0.000	0.000	0.000	0.00	0.00
Farm Machinery	0.882	0.351	0.416	0.22	0.27
Sum of Ag Input Mfg.	0.882	0.351	0.416	0.22	0.27
Sum of All Agri-food Ind.	164.246	47.710	66.740	35.12	43.73
NonAg Industries	141.857	66.814	85.892	45.20	56.27
Household Consumption	59.946	164.094	37.403	19.68	24.51
Totals	366.049	278.619	190.036	100.00	124.51

* 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 Calhoun County's agricultural production industry was \$155.524 million. \$64.831 million of this output (41.69 percent of the total output value) was the value added to the output by economic activity within Calhoun County (value added). The remainder came from inputs purchased from out-of-county sources. 71.47 percent of this value added, or \$46.335 million, was paid out as personal income to residents of Calhoun 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 Calhoun County's agri-food industry output was \$164.246 million, or 44.87 percent of Calhoun County's total industrial production. Of this, \$66.740 million (40.63 percent) was value added within these industries in Calhoun County. \$47.710 million of this value added was paid out as personal income.

Overall, Table 4 shows that exports from Calhoun County's agri-food industries accounted for 44.87 percent of the county's total output, 35.12 percent of total value added, and 17.12 percent of the county's personal income.

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

	Calhoun County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold*	140,558	142,393	12,273,634	12,162,165
Value of Crops Sold*	82,575	91,871	6,071,272	6,381,676
Total Cropland Harvested (acres)	309,225	314,757	23,994,343	24,008,826
Corn for grain	155,718	153,784	11,761,392	11,930,542
Corn for silage and green-chop	1,164	2,070	247,269	244,913
Soybeans	149,098	157,533	10,418,621	10,258,681
Oats	531	939	143,513	214,485
Harvested forage crops	2,815	(NA)	1,533,027	(NA)
Bushels harvested				
Corn	25,582,211	20,217,010	1,851,276,224	1,581,093,092
Soybeans	7,284,592	6,903,734	487,380,897	459,309,682
Oats	46,984	77,641	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 Calhoun County crop inventories and sales for 1997 and 2002. State statistics are included for comparison. Table 6 provides similar information for Calhoun 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

	Calhoun County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold	140,558	142,393	12,273,634	12,162,165
Value of Livestock and Livestock Products Sold*	57,983	50,522	6,202,362	5,780,489
Hogs and Pigs				
Total inventory	191,893	170,055	15,486,531	14,513,319
Inventory of breeding stock	9,668	9,782	1,145,323	1,354,166
Number sold	514,239	277,623	41,232,492	27,340,921
Value of sales*	40,727	31,369	3,078,455	3,012,764
Cattle and Calves				
Total inventory	16,531	21,075	3,535,945	3,717,394
Beef cows	(D)	(D)	987,670	1,051,178
Milk cows	(D)	(D)	206,965	222,090
Number sold	20,340	21,989	2,929,704	2,936,978
Value of sales*	16,966	17,057	2,119,935	1,886,416
Value of Dairy Products Sold*	-	-	442,431	407,897
Poultry and Poultry Products				
Value of sales*	(D)	1,892	511,949	414,587
Inventory of layers 20 weeks and older	203	374	38,650,210	21,514,768
Broiler and meat-type chicken inventory	458	3,073	1,730,091	1,023,349
Broiler and meat-type chickens sold	(D)	2,115	9,558,127	6,919,963
Turkey inventory	21	(D)	3,681,862	2,552,845
Turkeys sold	(D)	148,000	9,145,415	7,279,822
Sheep and Goats and Related Products				
Value of sales	188	(NA)	23,366	(NA)
Inventory of sheep and lambs	1,245	1,711	249,908	272,913
Number of sheep and lambs sold	1,960	1,759	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 Calhoun 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	17,857	70,707	88,564	(NA)	(NA)	(NA)
1991	11,164	75,164	86,328	-6,693	4,457	-2,236
1992	29,579	78,819	108,398	18,415	3,655	22,070
1993	-157	82,662	82,505	-29,736	3,843	-25,893
1994	41,199	83,085	124,284	41,356	423	41,779
1995	28,406	86,102	114,508	-12,793	3,017	-9,776
1996	53,453	87,202	140,655	25,047	1,100	26,147
1997	42,211	88,805	131,016	-11,242	1,603	-9,639
1998	19,114	93,027	112,141	-23,097	4,222	-18,875
1999	13,222	97,546	110,768	-5,892	4,519	-1,373
2000	16,751	100,001	116,752	3,529	2,455	5,984
2001	14,122	93,844	107,966	-2,629	-6,157	-8,786
2002	26,723	96,927	123,650	12,601	3,083	15,684
2003	19,147	97,962	117,109	-7,576	1,035	-6,541

Data from the US Bureau of Economic Analysis