

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

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This summary report provides county-level statistics for Cerro Gordo 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 Cerro Gordo County had 795 farms in 2002. These farms averaged 407 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 Cerro Gordo County was \$955,620 in 2002, compared to \$808,152 for Iowa and \$604,403, nationwide. In 2002, Cerro Gordo County farms marketed an average of \$141,204 worth of farm products according to the US Census of Agriculture.

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

	Cerro Gordo County		Iowa		United States	
	2002	1997	2002	1997	2002	1997
Number of farms	795	880	90,655	96,705	2,128,982	2,215,876
Land in farms (acres)	323,420	313,140	31,729,490	32,313,119	938,279,056	954,752,502
Average farm size (acres)	407	356	350	334	441	431
Market value, per farm, of						
Land and buildings (\$)	824,072	669,837	707,730	559,678	537,833	416,007
Machinery and equipment (\$)	131,548	94,683	100,422	79,607	66,570	53,861
Farm products sold (\$)	141,204	140,654	135,388	125,766	94,245	90,880

Table 2 shows employment data for Cerro Gordo 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 Cerro Gordo 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)

	Cerro Gordo County			Iowa	
	Jobs	As a percent of County total	State Category	Jobs	% of state total
Farm and closely-related	1,725	5.16	0.85	201,967	10.57
Peripherally-related	3,282	9.82	1.71	191,669	10.04
Total farm and farm-related	5,007	14.98	1.27	393,636	20.61
Total employment	33,416	100.00	1.75	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 Cerro Gordo 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 Cerro Gordo 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 Cerro Gordo County.

Table 3 shows that, in 2002, the total output value of Cerro Gordo County's agricultural production industry was \$115.726 million. \$47.167 million of this output (40.76 percent of the total output value) was the value added to the output by Cerro Gordo 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). 60.77 percent of this value added, or \$28.665 million, was paid out as compensation to the 1,350 production agriculture jobs in Cerro Gordo 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

Cerro Gordo County		Labor		Value-Added	
Agricultural Production	Output*	Jobs	Income*	Value*	Pct. Of Tot.
Oilseeds	27.140	186	8.984	14.592	1.01
Grain	49.154	508	12.187	22.260	1.54
Other Crops	3.319	12	1.076	2.221	0.15
Cattle	4.772	23	0.123	0.329	0.02
Poultry	6.105	8	0.918	1.993	0.14
Hogs and Pigs	20.199	327	2.135	3.136	0.22
Other Ag Production	5.037	286	3.242	2.636	0.18
Sum of Ag Production	115.726	1,350	28.665	47.167	3.26
Primary Food Processing					
Crop	58.496	49	2.509	3.490	0.24
Dairy	72.626	125	8.007	27.171	1.88
Meat	92.598	375	20.179	24.282	1.68
Sum of Primary Food Proc.	223.720	549	30.695	54.943	3.79
Other Food/Ag Processing					
Animal and Pet Foods	35.261	69	2.979	4.222	0.29
Other Food Processing	2.882	17	0.341	0.844	0.06
Sum of Other Ag Proc.	38.143	86	3.320	5.066	0.35
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.	377.589	1,985	62.680	107.176	7.40
NonAg Industries	2,448.193	30,453	881.154	1,341.422	92.60
Totals	2,825.782	32,438	943.834	1,448.598	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 Cerro Gordo County's agri-food industry output was \$377.589 million, or 13.36 percent of Cerro Gordo County's total industrial production. Of this, \$107.176 million (28.38 percent) was value added within these industries in Cerro Gordo County. \$62.680 million of this value added was paid out as wages and salaries to the 1,985 agri-food industry jobs in the county.

Overall, Table 3 shows that Cerro Gordo County's agri-food industries directly accounted for 13.36 percent of the county's total output, 7.40 percent of total value added, 6.64 percent of labor income, and 6.12 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

Cerro Gordo County	Value Added				
	As a Percent of				
	Nonhousehold				
Agricultural Production	Output*	Income*	Value Added*	Total V.A.	Demand
Oilseeds	20.805	7.924	11.688	0.81	0.91
Grain	63.907	21.165	32.180	2.22	2.51
Other Crops	4.214	1.695	2.735	0.19	0.21
Cattle	0.030	0.004	0.006	0.00	0.00
Poultry	7.085	1.739	2.838	0.20	0.22
Hogs and Pigs	24.227	4.362	6.724	0.46	0.53
Other Ag Production	1.216	0.224	0.342	0.02	0.03
Sum of Ag Production	121.485	37.112	56.512	3.90	4.42
Primary Food Processing					
Crop	96.748	17.286	26.473	1.83	2.07
Dairy	88.508	19.557	37.252	2.57	2.91
Meat	115.423	28.466	39.987	2.76	3.12
Sum of Primary Food Proc.	300.680	65.309	103.712	7.16	8.10
Other Food/Ag Processing					
Animal and Pet Foods	50.975	8.838	13.367	0.92	1.04
Other Food Processing	2.416	0.527	0.912	0.06	0.07
Sum of Other Ag Proc.	53.391	9.365	14.279	0.99	1.12
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.	475.555	111.786	174.504	12.05	13.63
NonAg Industries	2,075.139	759.408	1,105.365	76.31	86.37
Household Consumption	275.088	499.134	168.729	11.65	13.18
Totals	2,825.782	1,370.328	1,448.598	100.00	113.18

* 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 Cerro Gordo County's agricultural production industry was \$121.485 million. \$56.512 million of this output (46.52 percent of the total output value) was the value added to the output by economic activity within Cerro Gordo County (value added). The remainder came from inputs purchased from out-of-county sources. 65.67 percent of this value added, or \$37.112 million, was paid out as personal income to residents of Cerro Gordo 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 Cerro Gordo County's agri-food industry output was \$475.555 million, or 16.83 percent of Cerro Gordo County's total industrial production. Of this, \$174.504 million (36.69 percent) was value added within these industries in Cerro Gordo County. \$111.786 million of this value added was paid out as personal income.

Overall, Table 4 shows that exports from Cerro Gordo County's agri-food industries accounted for 16.83 percent of the county's total output, 12.05 percent of total value added, and 8.16 percent of the county's personal income.

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

	Cerro Gordo County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold*	112,257	123,775	12,273,634	12,162,165
Value of Crops Sold*	83,706	84,370	6,071,272	6,381,676
Total Cropland Harvested (acres)	291,508	274,248	23,994,343	24,008,826
Corn for grain	154,939	142,667	11,761,392	11,930,542
Corn for silage and green-chop	739	1,052	247,269	244,913
Soybeans	130,948	125,838	10,418,621	10,258,681
Oats	920	1,298	143,513	214,485
Harvested forage crops	3,685	(NA)	1,533,027	(NA)
Bushels harvested				
Corn	25,304,491	20,026,521	1,851,276,224	1,581,093,092
Soybeans	5,854,746	5,419,271	487,380,897	459,309,682
Oats	70,867	94,638	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 Cerro Gordo County crop inventories and sales for 1997 and 2002. State statistics are included for comparison. Table 6 provides similar information for Cerro Gordo 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

	Cerro Gordo County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold	112,257	123,775	12,273,634	12,162,165
Value of Livestock and Livestock Products Sold*	28,551	39,405	6,202,362	5,780,489
Hogs and Pigs				
Total inventory	144,002	125,840	15,486,531	14,513,319
Inventory of breeding stock	7,822	16,672	1,145,323	1,354,166
Number sold	322,247	285,987	41,232,492	27,340,921
Value of sales*	22,407	30,179	3,078,455	3,012,764
Cattle and Calves				
Total inventory	10,975	9,380	3,535,945	3,717,394
Beef cows	2,694	2,690	987,670	1,051,178
Milk cows	391	470	206,965	222,090
Number sold	6,348	7,013	2,929,704	2,936,978
Value of sales*	4,608	4,901	2,119,935	1,886,416
Value of Dairy Products Sold*	898	1,059	442,431	407,897
Poultry and Poultry Products				
Value of sales*	(D)	2,987	511,949	414,587
Inventory of layers 20 weeks and older	(D)	35,694	38,650,210	21,514,768
Broiler and meat-type chicken inventory	352	40	1,730,091	1,023,349
Broiler and meat-type chickens sold	926	(D)	9,558,127	6,919,963
Turkey inventory	10	8	3,681,862	2,552,845
Turkeys sold	(D)	-	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	1,137	1,387	249,908	272,913
Number of sheep and lambs sold	829	1,317	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 Cerro Gordo 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	30,506	573,775	604,281	(NA)	(NA)	(NA)
1991	17,078	602,440	619,518	-13,428	28,665	15,237
1992	26,263	617,616	643,879	9,185	15,176	24,361
1993	613	630,499	631,112	-25,650	12,883	-12,767
1994	34,562	670,047	704,609	33,949	39,548	73,497
1995	28,012	708,497	736,509	-6,550	38,450	31,900
1996	46,694	739,801	786,495	18,682	31,304	49,986
1997	44,340	777,583	821,923	-2,354	37,782	35,428
1998	31,386	825,932	857,318	-12,954	48,349	35,395
1999	18,097	866,245	884,342	-13,289	40,313	27,024
2000	23,449	889,429	912,878	5,352	23,184	28,536
2001	16,845	904,546	921,391	-6,604	15,117	8,513
2002	21,205	928,984	950,189	4,360	24,438	28,798
2003	14,505	989,459	1,003,964	-6,700	60,475	53,775

Data from the US Bureau of Economic Analysis