

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

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This summary report provides county-level statistics for Clinton 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 Clinton County had 1,219 farms in 2002. These farms averaged 318 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 Clinton County was \$806,062 in 2002, compared to \$808,152 for Iowa and \$604,403, nationwide. In 2002, Clinton County farms marketed an average of \$113,456 worth of farm products according to the US Census of Agriculture.

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

	Clinton County		Iowa		United States	
	2002	1997	2002	1997	2002	1997
Number of farms	1,219	1,355	90,655	96,705	2,128,982	2,215,876
Land in farms (acres)	387,596	381,666	31,729,490	32,313,119	938,279,056	954,752,502
Average farm size (acres)	318	282	350	334	441	431
Market value, per farm, of						
Land and buildings (\$)	708,713	475,664	707,730	559,678	537,833	416,007
Machinery and equipment (\$)	97,349	66,990	100,422	79,607	66,570	53,861
Farm products sold (\$)	113,456	112,115	135,388	125,766	94,245	90,880

Table 2 shows employment data for Clinton 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 Clinton 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)

	Clinton County			Iowa	
	Jobs	As a percent of County total	State Category	Jobs	% of state total
Farm and closely-related	2,613	9.02	1.29	201,967	10.57
Peripherally-related	3,015	10.41	1.57	191,669	10.04
Total farm and farm-related	5,628	19.43	1.43	393,636	20.61
Total employment	28,967	100.00	1.52	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 Clinton 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 Clinton 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 Clinton County.

Table 3 shows that, in 2002, the total output value of Clinton County's agricultural production industry was \$134.181 million. \$47.918 million of this output (35.71 percent of the total output value) was the value added to the output by Clinton 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). 54.51 percent of this value added, or \$26.121 million, was paid out as compensation to the 1,757 production agriculture jobs in Clinton 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

Clinton County		Labor		Value-Added	
Agricultural Production	Output*	Jobs	Income*	Value*	Pct. Of Tot.
Oilseeds	28.306	300	9.343	15.219	1.09
Grain	56.517	901	13.785	25.594	1.83
Other Crops	5.565	24	1.199	2.885	0.21
Cattle	32.635	245	0.539	2.282	0.16
Poultry	0.000	0	0.000	0.000	0.00
Hogs and Pigs	9.114	228	0.775	1.415	0.10
Other Ag Production	2.044	59	0.480	0.523	0.04
Sum of Ag Production	134.181	1,757	26.121	47.918	3.43
Primary Food Processing					
Crop	440.845	508	34.961	88.061	6.31
Dairy	0.000	0	0.000	0.000	0.00
Meat	10.048	42	1.693	3.445	0.25
Sum of Primary Food Proc.	450.893	550	36.654	91.506	6.55
Other Food/Ag Processing					
Animal and Pet Foods	162.978	276	18.137	36.408	2.61
Other Food Processing	13.932	49	2.200	3.633	0.26
Sum of Other Ag Proc.	176.910	325	20.337	40.041	2.87
Ag Input Manufacturing					
Ag Chemical and Fertilizer	28.815	86	6.787	10.428	0.75
Farm Machinery	0.000	0	0.000	0.000	0.00
Sum of Ag Input Mfg.	28.815	86	6.787	10.428	0.75
Sum of All Agri-food Ind.	790.799	2,718	89.899	189.893	13.60
NonAg Industries	2,534.678	25,172	750.157	1,206.284	86.40
Totals	3,325.477	27,890	840.056	1,396.177	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 Clinton County's agri-food industry output was \$790.799 million, or 23.78 percent of Clinton County's total industrial production. Of this, \$189.893 million (24.01 percent) was value added within these industries in Clinton County. \$89.899 million of this value added was paid out as wages and salaries to the 2,718 agri-food industry jobs in the county.

Overall, Table 3 shows that Clinton County's agri-food industries directly accounted for 23.78 percent of the county's total output, 13.60 percent of total value added, 10.70 percent of labor income, and 9.75 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

Clinton County	Output*	Income*	Value Added*	Value Added As a Percent of Nonhousehold	
				Total V.A.	Demand
Agricultural Production					
Oilseeds	31.643	11.327	17.571	1.26	1.44
Grain	29.677	8.733	14.428	1.03	1.18
Other Crops	0.806	0.230	0.430	0.03	0.04
Cattle	41.783	4.035	8.135	0.58	0.67
Poultry	0.000	0.000	0.000	0.00	0.00
Hogs and Pigs	11.061	1.594	2.825	0.20	0.23
Other Ag Production	1.969	0.284	0.503	0.04	0.04
Sum of Ag Production	116.938	26.203	43.893	3.14	3.60
Primary Food Processing					
Crop	586.725	99.583	181.247	12.98	14.88
Dairy	0.000	0.000	0.000	0.00	0.00
Meat	4.395	0.914	1.637	0.12	0.13
Sum of Primary Food Proc.	591.120	100.497	182.884	13.10	15.01
Other Food/Ag Processing					
Animal and Pet Foods	210.443	34.674	61.057	4.37	5.01
Other Food Processing	14.074	2.778	4.546	0.33	0.37
Sum of Other Ag Proc.	224.517	37.453	65.603	4.70	5.38
Ag Input Manufacturing					
Ag Chemical and Fertilizer	37.184	9.889	15.567	1.11	1.28
Farm Machinery	0.000	0.000	0.000	0.00	0.00
Sum of Ag Input Mfg.	37.184	9.889	15.567	1.11	1.28
Sum of All Agri-food Ind.	969.760	174.042	307.947	22.06	25.27
NonAg Industries	2,070.894	587.767	910.496	65.21	74.73
Household Consumption	284.823	591.600	177.734	12.73	14.59
Totals	3,325.477	1,353.410	1,396.177	100.00	114.59

* 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 Clinton County's agricultural production industry was \$116.938 million. \$43.893 million of this output (37.54 percent of the total output value) was the value added to the output by economic activity within Clinton County (value added). The remainder came from inputs purchased from out-of-county sources. 59.70 percent of this value added, or \$26.203 million, was paid out as personal income to residents of Clinton 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 Clinton County's agri-food industry output was \$969.760 million, or 29.16 percent of Clinton County's total industrial production. Of this, \$307.947 million (31.75 percent) was value added within these industries in Clinton County. \$174.042 million of this value added was paid out as personal income.

Overall, Table 4 shows that exports from Clinton County's agri-food industries accounted for 29.16 percent of the county's total output, 22.06 percent of total value added, and 12.86 percent of the county's personal income.

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

	Clinton County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold*	138,303	151,916	12,273,634	12,162,165
Value of Crops Sold*	88,357	89,326	6,071,272	6,381,676
Total Cropland Harvested (acres)	313,542	299,978	23,994,343	24,008,826
Corn for grain	169,070	176,860	11,761,392	11,930,542
Corn for silage and green-chop	4,285	3,951	247,269	244,913
Soybeans	124,176	102,988	10,418,621	10,258,681
Oats	1,567	3,603	143,513	214,485
Harvested forage crops	15,577	(NA)	1,533,027	(NA)
Bushels harvested				
Corn	29,053,084	24,177,699	1,851,276,224	1,581,093,092
Soybeans	6,106,326	5,156,711	487,380,897	459,309,682
Oats	111,321	244,676	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 Clinton County crop inventories and sales for 1997 and 2002. State statistics are included for comparison. Table 6 provides similar information for Clinton 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

	Clinton County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold	138,303	151,916	12,273,634	12,162,165
Value of Livestock and Livestock Products Sold*	49,946	62,590	6,202,362	5,780,489
Hogs and Pigs				
Total inventory	69,554	99,731	15,486,531	14,513,319
Inventory of breeding stock	5,508	10,460	1,145,323	1,354,166
Number sold	154,145	172,752	41,232,492	27,340,921
Value of sales*	12,524	18,041	3,078,455	3,012,764
Cattle and Calves				
Total inventory	52,601	54,964	3,535,945	3,717,394
Beef cows	11,582	12,988	987,670	1,051,178
Milk cows	2,815	2,534	206,965	222,090
Number sold	41,708	56,463	2,929,704	2,936,978
Value of sales*	31,515	39,954	2,119,935	1,886,416
Value of Dairy Products Sold*	5,459	3,864	442,431	407,897
Poultry and Poultry Products				
Value of sales*	(D)	(D)	511,949	414,587
Inventory of layers 20 weeks and older	1,748	1,046	38,650,210	21,514,768
Broiler and meat-type chicken inventory	1,151	593	1,730,091	1,023,349
Broiler and meat-type chickens sold	2,060	277	9,558,127	6,919,963
Turkey inventory	184	161	3,681,862	2,552,845
Turkeys sold	(D)	69	9,145,415	7,279,822
Sheep and Goats and Related Products				
Value of sales	141	(NA)	23,366	(NA)
Inventory of sheep and lambs	2,160	2,341	249,908	272,913
Number of sheep and lambs sold	1,583	2,106	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 Clinton 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	33,075	524,132	557,207	(NA)	(NA)	(NA)
1991	18,687	553,059	571,746	-14,388	28,927	14,539
1992	33,392	590,191	623,583	14,705	37,132	51,837
1993	14,964	596,698	611,662	-18,428	6,507	-11,921
1994	37,334	621,983	659,317	22,370	25,285	47,655
1995	28,874	642,188	671,062	-8,460	20,205	11,745
1996	49,931	676,029	725,960	21,057	33,841	54,898
1997	46,225	697,584	743,809	-3,706	21,555	17,849
1998	34,648	726,491	761,139	-11,577	28,907	17,330
1999	24,559	750,605	775,164	-10,089	24,114	14,025
2000	25,178	782,719	807,897	619	32,114	32,733
2001	20,809	799,527	820,336	-4,369	16,808	12,439
2002	24,318	832,885	857,203	3,509	33,358	36,867
2003	16,197	856,454	872,651	-8,121	23,569	15,448

Data from the US Bureau of Economic Analysis