

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

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This summary report provides county-level statistics for Humboldt 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 Humboldt County had 606 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 Humboldt County was \$1,160,046 in 2002, compared to \$808,152 for Iowa and \$604,403, nationwide. In 2002, Humboldt County farms marketed an average of \$159,466 worth of farm products according to the US Census of Agriculture.

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

	Humboldt County		Iowa		United States	
	2002	1997	2002	1997	2002	1997
Number of farms	606	630	90,655	96,705	2,128,982	2,215,876
Land in farms (acres)	270,868	266,824	31,729,490	32,313,119	938,279,056	954,752,502
Average farm size (acres)	447	424	350	334	441	431
Market value, per farm, of						
Land and buildings (\$)	1,041,524	966,938	707,730	559,678	537,833	416,007
Machinery and equipment (\$)	118,522	139,979	100,422	79,607	66,570	53,861
Farm products sold (\$)	159,466	164,613	135,388	125,766	94,245	90,880

Table 2 shows employment data for Humboldt 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 Humboldt 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)

	Humboldt County			Iowa	
	Jobs	As a percent of County total	State Category	Jobs	% of state total
Farm and closely-related	984	14.82	0.49	201,967	10.57
Peripherally-related	492	7.41	0.26	191,669	10.04
Total farm and farm-related	1,476	22.24	0.38	393,636	20.61
Total employment	6,639	100.00	0.35	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 Humboldt 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 Humboldt 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 Humboldt County.

Table 3 shows that, in 2002, the total output value of Humboldt County's agricultural production industry was \$96.916 million. \$38.750 million of this output (39.98 percent of the total output value) was the value added to the output by Humboldt 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). 59.44 percent of this value added, or \$23.031 million, was paid out as compensation to the 1,028 production agriculture jobs in Humboldt 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

Humboldt County		Labor		Value-Added	
Agricultural Production	Output*	Jobs	Income*	Value*	Pct. Of Tot.
Oilseeds	25.315	155	8.360	13.611	3.62
Grain	40.925	378	10.013	18.534	4.93
Other Crops	1.359	5	0.473	0.990	0.26
Cattle	9.330	40	0.170	0.650	0.17
Poultry	2.738	3	0.385	0.894	0.24
Hogs and Pigs	13.372	193	1.188	2.077	0.55
Other Ag Production	3.877	254	2.442	1.994	0.53
Sum of Ag Production	96.916	1,028	23.031	38.750	10.30
Primary Food Processing					
Crop	0.000	0	0.000	0.000	0.00
Dairy	0.000	0	0.000	0.000	0.00
Meat	15.425	69	2.515	3.026	0.80
Sum of Primary Food Proc.	15.425	69	2.515	3.026	0.80
Other Food/Ag Processing					
Animal and Pet Foods	0.000	0	0.000	0.000	0.00
Other Food Processing	5.685	29	0.677	1.442	0.38
Sum of Other Ag Proc.	5.685	29	0.677	1.442	0.38
Ag Input Manufacturing					
Ag Chemical and Fertilizer	0.000	0	0.000	0.000	0.00
Farm Machinery	20.907	157	-5.487	-1.932	-0.51
Sum of Ag Input Mfg.	20.907	157	-5.487	-1.932	-0.51
Sum of All Agri-food Ind.	138.933	1,283	20.736	41.286	10.98
NonAg Industries	1,082.274	6,677	237.214	334.758	89.02
Totals	1,221.207	7,960	257.950	376.044	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 Humboldt County's agri-food industry output was \$138.933 million, or 11.38 percent of Humboldt County's total industrial production. Of this, \$41.286 million (29.72 percent) was value added within these industries in Humboldt County. \$20.736 million of this value added was paid out as wages and salaries to the 1,283 agri-food industry jobs in the county.

Overall, Table 3 shows that Humboldt County's agri-food industries directly accounted for 11.38 percent of the county's total output, 10.98 percent of total value added, 8.04 percent of labor income, and 16.12 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

Humboldt County	Value Added				
	As a Percent of				
	Nonhousehold				
Agricultural Production	Output*	Income*	Value Added*	Total V.A.	Demand
Oilseeds	31.609	11.482	17.593	4.68	4.97
Grain	50.928	15.246	24.843	6.61	7.01
Other Crops	1.029	0.388	0.729	0.19	0.21
Cattle	10.048	0.622	1.620	0.43	0.46
Poultry	2.839	0.548	1.052	0.28	0.30
Hogs and Pigs	15.073	1.504	3.401	0.90	0.96
Other Ag Production	0.852	0.088	0.195	0.05	0.06
Sum of Ag Production	112.377	29.879	49.433	13.15	13.96
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	17.226	2.082	4.219	1.12	1.19
Sum of Primary Food Proc.	17.226	2.082	4.219	1.12	1.19
Other Food/Ag Processing					
Animal and Pet Foods	0.000	0.000	0.000	0.00	0.00
Other Food Processing	6.299	0.862	1.953	0.52	0.55
Sum of Other Ag Proc.	6.299	0.862	1.953	0.52	0.55
Ag Input Manufacturing					
Ag Chemical and Fertilizer	0.000	0.000	0.000	0.00	0.00
Farm Machinery	21.345	-6.077	-1.469	-0.39	-0.41
Sum of Ag Input Mfg.	21.345	-6.077	-1.469	-0.39	-0.41
Sum of All Agri-food Ind.	157.246	26.746	54.136	14.40	15.28
NonAg Industries	1,030.454	152.713	300.086	79.80	84.72
Household Consumption	33.507	101.891	21.823	5.80	6.16
Totals	1,221.207	281.350	376.044	100.00	106.16

* 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 Humboldt County's agricultural production industry was \$112.377 million. \$49.433 million of this output (43.99 percent of the total output value) was the value added to the output by economic activity within Humboldt County (value added). The remainder came from inputs purchased from out-of-county sources. 60.44 percent of this value added, or \$29.879 million, was paid out as personal income to residents of Humboldt 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 Humboldt County's agri-food industry output was \$157.246 million, or 12.88 percent of Humboldt County's total industrial production. Of this, \$54.136 million (34.43 percent) was value added within these industries in Humboldt County. \$26.746 million of this value added was paid out as personal income.

Overall, Table 4 shows that exports from Humboldt County's agri-food industries accounted for 12.88 percent of the county's total output, 14.40 percent of total value added, and 9.51 percent of the county's personal income.

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

	Humboldt County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold*	96,637	103,706	12,273,634	12,162,165
Value of Crops Sold*	65,807	75,274	6,071,272	6,381,676
Total Cropland Harvested (acres)	246,764	247,620	23,994,343	24,008,826
Corn for grain	127,427	124,639	11,761,392	11,930,542
Corn for silage and green-chop	1,405	878	247,269	244,913
Soybeans	115,902	121,696	10,418,621	10,258,681
Oats	290	440	143,513	214,485
Harvested forage crops	1,974	(NA)	1,533,027	(NA)
Bushels harvested				
Corn	21,093,167	17,736,193	1,851,276,224	1,581,093,092
Soybeans	5,461,184	5,481,621	487,380,897	459,309,682
Oats	24,120	34,905	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 Humboldt County crop inventories and sales for 1997 and 2002. State statistics are included for comparison. Table 6 provides similar information for Humboldt 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

	Humboldt County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold	96,637	103,706	12,273,634	12,162,165
Value of Livestock and Livestock Products Sold*	30,829	28,432	6,202,362	5,780,489
Hogs and Pigs				
Total inventory	96,333	85,407	15,486,531	14,513,319
Inventory of breeding stock	18,687	7,732	1,145,323	1,354,166
Number sold	393,986	182,196	41,232,492	27,340,921
Value of sales*	19,998	17,448	3,078,455	3,012,764
Cattle and Calves				
Total inventory	11,677	12,754	3,535,945	3,717,394
Beef cows	(D)	1,613	987,670	1,051,178
Milk cows	(D)	299	206,965	222,090
Number sold	11,684	12,273	2,929,704	2,936,978
Value of sales*	9,010	8,371	2,119,935	1,886,416
Value of Dairy Products Sold*	(D)	512	442,431	407,897
Poultry and Poultry Products				
Value of sales*	(D)	1,740	511,949	414,587
Inventory of layers 20 weeks and older	(D)	133,062	38,650,210	21,514,768
Broiler and meat-type chicken inventory	(D)	(D)	1,730,091	1,023,349
Broiler and meat-type chickens sold	1,415	(D)	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	26	(NA)	23,366	(NA)
Inventory of sheep and lambs	626	3,870	249,908	272,913
Number of sheep and lambs sold	274	3,731	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 Humboldt 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	18,004	78,512	96,516	(NA)	(NA)	(NA)
1991	8,105	82,841	90,946	-9,899	4,329	-5,570
1992	24,931	88,384	113,315	16,826	5,543	22,369
1993	1,317	94,224	95,541	-23,614	5,840	-17,774
1994	27,435	102,354	129,789	26,118	8,130	34,248
1995	27,646	106,307	133,953	211	3,953	4,164
1996	44,820	113,689	158,509	17,174	7,382	24,556
1997	37,166	123,770	160,936	-7,654	10,081	2,427
1998	20,354	132,705	153,059	-16,812	8,935	-7,877
1999	10,517	137,163	147,680	-9,837	4,458	-5,379
2000	15,880	139,200	155,080	5,363	2,037	7,400
2001	8,190	140,688	148,878	-7,690	1,488	-6,202
2002	17,144	144,581	161,725	8,954	3,893	12,847
2003	13,312	149,915	163,227	-3,832	5,334	1,502

Data from the US Bureau of Economic Analysis