

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

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 By Mark Imerman, David Swenson, Liesl Eathington, and Daniel Otto
 Iowa State University Department of Economics
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This summary report provides county-level statistics for Hamilton 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 Hamilton County had 797 farms in 2002. These farms averaged 437 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 Hamilton County was \$1,177,600 in 2002, compared to \$808,152 for Iowa and \$604,403, nationwide. In 2002, Hamilton County farms marketed an average of \$294,730 worth of farm products according to the US Census of Agriculture.

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

	Hamilton County		Iowa		United States	
	2002	1997	2002	1997	2002	1997
Number of farms	797	832	90,655	96,705	2,128,982	2,215,876
Land in farms (acres)	348,216	359,977	31,729,490	32,313,119	938,279,056	954,752,502
Average farm size (acres)	437	433	350	334	441	431
Market value, per farm, of						
Land and buildings (\$)	1,013,638	935,588	707,730	559,678	537,833	416,007
Machinery and equipment (\$)	163,962	119,965	100,422	79,607	66,570	53,861
Farm products sold (\$)	294,730	277,313	135,388	125,766	94,245	90,880

Table 2 shows employment data for Hamilton 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 Hamilton 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)

	Hamilton County			Iowa	
	Jobs	County total	As a percent of State Category	Jobs	% of state total
Farm and closely-related	1,626	14.81	0.80	201,967	10.57
Peripherally-related	625	5.69	0.33	191,669	10.04
Total farm and farm-related	2,250	20.50	0.57	393,636	20.61
Total employment	10,978	100.00	0.57	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 Hamilton 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 Hamilton 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 Hamilton County.

Table 3 shows that, in 2002, the total output value of Hamilton County’s agricultural production industry was \$197.832 million. \$66.928 million of this output (33.83 percent of the total output value) was the value added to the output by Hamilton 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). 58.11 percent of this value added, or \$38.893 million, was paid out as compensation to the 1,200 production agriculture jobs in Hamilton 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

Hamilton County		Labor		Value-Added	
Agricultural Production	Output*	Jobs	Income*	Value*	Pct. Of Tot.
Oilseeds	32.207	126	10.652	17.316	3.63
Grain	58.035	341	14.312	26.282	5.51
Other Crops	1.616	3	0.407	0.897	0.19
Cattle	3.510	10	0.080	0.243	0.05
Poultry	28.911	23	4.237	9.438	1.98
Hogs and Pigs	69.129	636	6.838	10.735	2.25
Other Ag Production	4.424	61	2.367	2.017	0.42
Sum of Ag Production	197.832	1,200	38.893	66.928	14.02
Primary Food Processing					
Crop	0.000	0	0.000	0.000	0.00
Dairy	0.000	0	0.000	0.000	0.00
Meat	49.431	216	7.669	9.211	1.93
Sum of Primary Food Proc.	49.431	216	7.669	9.211	1.93
Other Food/Ag Processing					
Animal and Pet Foods	6.390	13	0.519	0.735	0.15
Other Food Processing	0.925	12	0.241	0.421	0.09
Sum of Other Ag Proc.	7.315	25	0.760	1.156	0.24
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.	254.578	1,441	47.322	77.295	16.19
NonAg Industries	922.017	7,889	263.249	400.069	83.81
Totals	1,176.595	9,330	310.571	477.364	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 Hamilton County's agri-food industry output was \$254.578 million, or 21.64 percent of Hamilton County's total industrial production. Of this, \$77.295 million (30.36 percent) was value added within these industries in Hamilton County. \$47.322 million of this value added was paid out as wages and salaries to the 1,441 agri-food industry jobs in the county.

Overall, Table 3 shows that Hamilton County's agri-food industries directly accounted for 21.64 percent of the county's total output, 16.19 percent of total value added, 15.24 percent of labor income, and 15.44 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

Hamilton County	Value Added				
	As a Percent of				
	Nonhousehold				
Agricultural Production	Output*	Income*	Value Added*	Total V.A.	Demand
Oilseeds	42.372	16.263	24.095	5.05	5.47
Grain	67.842	22.021	34.028	7.13	7.72
Other Crops	0.373	0.129	0.215	0.05	0.05
Cattle	0.796	0.086	0.154	0.03	0.03
Poultry	34.542	8.027	13.259	2.78	3.01
Hogs and Pigs	86.856	14.368	22.717	4.76	5.15
Other Ag Production	2.375	0.395	0.623	0.13	0.14
Sum of Ag Production	235.155	61.290	95.090	19.92	21.58
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	60.221	11.216	15.912	3.33	3.61
Sum of Primary Food Proc.	60.221	11.216	15.912	3.33	3.61
Other Food/Ag Processing					
Animal and Pet Foods	8.257	1.270	1.924	0.40	0.44
Other Food Processing	0.176	0.055	0.087	0.02	0.02
Sum of Other Ag Proc.	8.434	1.325	2.011	0.42	0.46
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.	303.810	73.831	113.012	23.67	25.65
NonAg Industries	816.881	230.380	327.664	68.64	74.35
Household Consumption	55.905	154.602	36.687	7.69	8.33
Totals	1,176.595	458.813	477.364	100.00	108.33

* 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 Hamilton County's agricultural production industry was \$235.155 million. \$95.090 million of this output (40.44 percent of the total output value) was the value added to the output by economic activity within Hamilton County (value added). The remainder came from inputs purchased from out-of-county sources. 64.45 percent of this value added, or \$61.290 million, was paid out as personal income to residents of Hamilton 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 Hamilton County's agri-food industry output was \$303.810 million, or 25.82 percent of Hamilton County's total industrial production. Of this, \$113.012 million (37.20 percent) was value added within these industries in Hamilton County. \$73.831 million of this value added was paid out as personal income.

Overall, Table 4 shows that exports from Hamilton County's agri-food industries accounted for 25.82 percent of the county's total output, 23.67 percent of total value added, and 16.09 percent of the county's personal income.

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

	Hamilton County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold*	234,900	230,724	12,273,634	12,162,165
Value of Crops Sold*	87,729	98,597	6,071,272	6,381,676
Total Cropland Harvested (acres)	313,870	327,197	23,994,343	24,008,826
Corn for grain	164,589	170,951	11,761,392	11,930,542
Corn for silage and green-chop	754	324	247,269	244,913
Soybeans	144,979	153,648	10,418,621	10,258,681
Oats	483	816	143,513	214,485
Harvested forage crops	2,719	(NA)	1,533,027	(NA)
Bushels harvested				
Corn	28,970,872	23,835,516	1,851,276,224	1,581,093,092
Soybeans	6,947,924	6,744,542	487,380,897	459,309,682
Oats	46,908	62,610	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 Hamilton County crop inventories and sales for 1997 and 2002. State statistics are included for comparison. Table 6 provides similar information for Hamilton 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

	Hamilton County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold	234,900	230,724	12,273,634	12,162,165
Value of Livestock and Livestock Products Sold*	147,171	132,127	6,202,362	5,780,489
Hogs and Pigs				
Total inventory	467,250	447,999	15,486,531	14,513,319
Inventory of breeding stock	43,879	36,962	1,145,323	1,354,166
Number sold	1,270,158	888,179	41,232,492	27,340,921
Value of sales*	98,102	106,952	3,078,455	3,012,764
Cattle and Calves				
Total inventory	5,593	5,211	3,535,945	3,717,394
Beef cows	(D)	1,673	987,670	1,051,178
Milk cows	(D)	340	206,965	222,090
Number sold	5,701	6,832	2,929,704	2,936,978
Value of sales*	3,390	4,059	2,119,935	1,886,416
Value of Dairy Products Sold*	(D)	803	442,431	407,897
Poultry and Poultry Products				
Value of sales*	43,286	19,677	511,949	414,587
Inventory of layers 20 weeks and older	(D)	12,356	38,650,210	21,514,768
Broiler and meat-type chicken inventory	(D)	229	1,730,091	1,023,349
Broiler and meat-type chickens sold	(D)	(D)	9,558,127	6,919,963
Turkey inventory	1,144,923	655,000	3,681,862	2,552,845
Turkeys sold	3,119,327	1,735,990	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	890	1,427	249,908	272,913
Number of sheep and lambs sold	593	1,335	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 Hamilton 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	22,157	169,473	191,630	(NA)	(NA)	(NA)
1991	21,976	180,335	202,311	-181	10,862	10,681
1992	31,870	179,679	211,549	9,894	-656	9,238
1993	8,253	188,775	197,028	-23,617	9,096	-14,521
1994	46,682	209,935	256,617	38,429	21,160	59,589
1995	38,614	209,456	248,070	-8,068	-479	-8,547
1996	70,158	219,305	289,463	31,544	9,849	41,393
1997	67,191	227,012	294,203	-2,967	7,707	4,740
1998	45,598	242,776	288,374	-21,593	15,764	-5,829
1999	19,122	270,181	289,303	-26,476	27,405	929
2000	31,215	278,173	309,388	12,093	7,992	20,085
2001	25,752	274,211	299,963	-5,463	-3,962	-9,425
2002	31,569	286,538	318,107	5,817	12,327	18,144
2003	19,588	305,210	324,798	-11,981	18,672	6,691

Data from the US Bureau of Economic Analysis