

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

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This summary report provides county-level statistics for Hardin 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 Hardin County had 829 farms in 2002. These farms averaged 395 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 Hardin County was \$1,163,266 in 2002, compared to \$808,152 for Iowa and \$604,403, nationwide. In 2002, Hardin County farms marketed an average of \$303,944 worth of farm products according to the US Census of Agriculture.

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

	Hardin County		Iowa		United States	
	2002	1997	2002	1997	2002	1997
Number of farms	829	902	90,655	96,705	2,128,982	2,215,876
Land in farms (acres)	327,725	349,851	31,729,490	32,313,119	938,279,056	954,752,502
Average farm size (acres)	395	388	350	334	441	431
Market value, per farm, of						
Land and buildings (\$)	1,033,567	792,348	707,730	559,678	537,833	416,007
Machinery and equipment (\$)	129,699	97,985	100,422	79,607	66,570	53,861
Farm products sold (\$)	303,944	226,859	135,388	125,766	94,245	90,880

Table 2 shows employment data for Hardin 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 Hardin 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)

	Hardin County			Iowa	
	Jobs	County total	As a percent of State Category	Jobs	% of state total
Farm and closely-related	1,422	12.74	0.70	201,967	10.57
Peripherally-related	835	7.48	0.44	191,669	10.04
Total farm and farm-related	2,257	20.21	0.57	393,636	20.61
Total employment	11,164	100.00	0.58	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 Hardin 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 Hardin 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 Hardin County.

Table 3 shows that, in 2002, the total output value of Hardin County's agricultural production industry was \$239.333 million. \$68.082 million of this output (28.45 percent of the total output value) was the value added to the output by Hardin 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). 51.05 percent of this value added, or \$34.756 million, was paid out as compensation to the 1,912 production agriculture jobs in Hardin 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

Hardin County		Labor		Value-Added	
Agricultural Production	Output*	Jobs	Income*	Value*	Pct. Of Tot.
Oilseeds	27.807	78	9.122	14.951	3.05
Grain	51.934	219	12.224	23.519	4.79
Other Crops	2.025	3	0.395	1.112	0.23
Cattle	13.323	26	-0.043	0.962	0.20
Poultry	5.091	3	0.581	1.662	0.34
Hogs and Pigs	126.454	834	5.230	19.637	4.00
Other Ag Production	12.699	749	7.247	6.239	1.27
Sum of Ag Production	239.333	1,912	34.756	68.082	13.87
Primary Food Processing					
Crop	114.122	141	7.210	17.930	3.65
Dairy	0.000	0	0.000	0.000	0.00
Meat	0.000	0	0.000	0.000	0.00
Sum of Primary Food Proc.	114.122	141	7.210	17.930	3.65
Other Food/Ag Processing					
Animal and Pet Foods	0.000	0	0.000	0.000	0.00
Other Food Processing	37.882	131	4.061	9.438	1.92
Sum of Other Ag Proc.	37.882	131	4.061	9.438	1.92
Ag Input Manufacturing					
Ag Chemical and Fertilizer	0.362	2	0.059	0.142	0.03
Farm Machinery	4.576	42	-2.503	-1.434	-0.29
Sum of Ag Input Mfg.	4.938	44	-2.444	-1.292	-0.26
Sum of All Agri-food Ind.	396.275	2,228	43.583	94.158	19.18
NonAg Industries	656.711	8,325	250.597	396.746	80.82
Totals	1,052.986	10,553	294.180	490.904	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 Hardin County's agri-food industry output was \$396.275 million, or 37.63 percent of Hardin County's total industrial production. Of this, \$94.158 million (23.76 percent) was value added within these industries in Hardin County. \$43.583 million of this value added was paid out as wages and salaries to the 2,228 agri-food industry jobs in the county.

Overall, Table 3 shows that Hardin County's agri-food industries directly accounted for 37.63 percent of the county's total output, 19.18 percent of total value added, 14.81 percent of labor income, and 21.11 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

Hardin County	Output*	Income*	Value Added*	Value Added	
				As a Percent of Nonhousehold Demand	
Agricultural Production				Total V.A.	Demand
Oilseeds	37.393	14.248	21.042	4.29	4.90
Grain	29.820	9.681	14.928	3.04	3.47
Other Crops	0.420	0.134	0.238	0.05	0.06
Cattle	17.109	1.812	3.458	0.70	0.80
Poultry	6.320	1.402	2.485	0.51	0.58
Hogs and Pigs	165.574	23.240	43.293	8.82	10.08
Other Ag Production	6.352	1.777	2.415	0.49	0.56
Sum of Ag Production	262.987	52.294	87.858	17.90	20.45
Primary Food Processing					
Crop	192.222	38.863	64.747	13.19	15.07
Dairy	0.000	0.000	0.000	0.00	0.00
Meat	0.000	0.000	0.000	0.00	0.00
Sum of Primary Food Proc.	192.222	38.863	64.747	13.19	15.07
Other Food/Ag Processing					
Animal and Pet Foods	0.000	0.000	0.000	0.00	0.00
Other Food Processing	50.005	10.248	17.658	3.60	4.11
Sum of Other Ag Proc.	50.005	10.248	17.658	3.60	4.11
Ag Input Manufacturing					
Ag Chemical and Fertilizer	0.093	0.023	0.041	0.01	0.01
Farm Machinery	4.376	-1.667	-0.873	-0.18	-0.20
Sum of Ag Input Mfg.	4.469	-1.643	-0.832	-0.17	-0.19
Sum of All Agri-food Ind.	509.683	99.762	169.431	34.51	39.43
NonAg Industries	447.385	177.905	260.255	53.02	60.57
Household Consumption	95.918	227.296	61.218	12.47	14.25
Totals	1,052.986	504.964	490.904	100.00	114.25

* 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 Hardin County's agricultural production industry was \$262.987 million. \$87.858 million of this output (33.41 percent of the total output value) was the value added to the output by economic activity within Hardin County (value added). The remainder came from inputs purchased from out-of-county sources. 59.52 percent of this value added, or \$52.294 million, was paid out as personal income to residents of Hardin 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 Hardin County's agri-food industry output was \$509.683 million, or 48.40 percent of Hardin County's total industrial production. Of this, \$169.431 million (33.24 percent) was value added within these industries in Hardin County. \$99.762 million of this value added was paid out as personal income.

Overall, Table 4 shows that exports from Hardin County's agri-food industries accounted for 48.40 percent of the county's total output, 34.51 percent of total value added, and 19.76 percent of the county's personal income.

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

	Hardin County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold*	251,970	204,626	12,273,634	12,162,165
Value of Crops Sold*	81,102	89,013	6,071,272	6,381,676
Total Cropland Harvested (acres)	286,019	307,118	23,994,343	24,008,826
Corn for grain	154,606	162,843	11,761,392	11,930,542
Corn for silage and green-chop	818	1,220	247,269	244,913
Soybeans	124,764	139,344	10,418,621	10,258,681
Oats	418	645	143,513	214,485
Harvested forage crops	5,598	(NA)	1,533,027	(NA)
Bushels harvested				
Corn	26,767,933	20,738,669	1,851,276,224	1,581,093,092
Soybeans	5,998,763	6,152,497	487,380,897	459,309,682
Oats	30,616	47,969	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 Hardin County crop inventories and sales for 1997 and 2002. State statistics are included for comparison. Table 6 provides similar information for Hardin 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

	Hardin County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold	251,970	204,626	12,273,634	12,162,165
Value of Livestock and Livestock Products Sold*	170,868	115,614	6,202,362	5,780,489
Hogs and Pigs				
Total inventory	887,938	394,233	15,486,531	14,513,319
Inventory of breeding stock	40,395	26,564	1,145,323	1,354,166
Number sold	1,693,130	768,467	41,232,492	27,340,921
Value of sales*	146,839	88,258	3,078,455	3,012,764
Cattle and Calves				
Total inventory	19,839	20,275	3,535,945	3,717,394
Beef cows	(D)	6,679	987,670	1,051,178
Milk cows	(D)	162	206,965	222,090
Number sold	18,577	16,125	2,929,704	2,936,978
Value of sales*	(D)	10,303	2,119,935	1,886,416
Value of Dairy Products Sold*	(D)	305	442,431	407,897
Poultry and Poultry Products				
Value of sales*	(D)	15,087	511,949	414,587
Inventory of layers 20 weeks and older	(D)	(D)	38,650,210	21,514,768
Broiler and meat-type chicken inventory	(D)	390	1,730,091	1,023,349
Broiler and meat-type chickens sold	935	708	9,558,127	6,919,963
Turkey inventory	(D)	(D)	3,681,862	2,552,845
Turkeys sold	(D)	(D)	9,145,415	7,279,822
Sheep and Goats and Related Products				
Value of sales	51	(NA)	23,366	(NA)
Inventory of sheep and lambs	1,167	1,082	249,908	272,913
Number of sheep and lambs sold	552	1,523	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 Hardin 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	29,482	175,067	204,549	(NA)	(NA)	(NA)
1991	25,309	176,906	202,215	-4,173	1,839	-2,334
1992	39,528	186,786	226,314	14,219	9,880	24,099
1993	15,658	195,987	211,645	-23,870	9,201	-14,669
1994	44,666	205,520	250,186	29,008	9,533	38,541
1995	44,938	211,717	256,655	272	6,197	6,469
1996	67,500	217,815	285,315	22,562	6,098	28,660
1997	66,727	226,773	293,500	-773	8,958	8,185
1998	43,792	255,935	299,727	-22,935	29,162	6,227
1999	22,425	250,499	272,924	-21,367	-5,436	-26,803
2000	31,807	255,304	287,111	9,382	4,805	14,187
2001	29,950	266,517	296,467	-1,857	11,213	9,356
2002	30,847	268,251	299,098	897	1,734	2,631
2003	18,978	260,967	279,945	-11,869	-7,284	-19,153

Data from the US Bureau of Economic Analysis