

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

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This summary report provides county-level statistics for Harrison 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 Harrison County had 828 farms in 2002. These farms averaged 517 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 Harrison County was \$986,692 in 2002, compared to \$808,152 for Iowa and \$604,403, nationwide. In 2002, Harrison County farms marketed an average of \$134,289 worth of farm products according to the US Census of Agriculture.

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

	Harrison County		Iowa		United States	
	2002	1997	2002	1997	2002	1997
Number of farms	828	938	90,655	96,705	2,128,982	2,215,876
Land in farms (acres)	428,235	412,233	31,729,490	32,313,119	938,279,056	954,752,502
Average farm size (acres)	517	439	350	334	441	431
Market value, per farm, of						
Land and buildings (\$)	881,870	634,761	707,730	559,678	537,833	416,007
Machinery and equipment (\$)	104,822	101,064	100,422	79,607	66,570	53,861
Farm products sold (\$)	134,289	125,654	135,388	125,766	94,245	90,880

Table 2 shows employment data for Harrison 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 Harrison 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)

	Harrison County			Iowa	
	Jobs	As a percent of County total	State Category	Jobs	% of state total
Farm and closely-related	1,016	14.85	0.50	201,967	10.57
Peripherally-related	695	10.16	0.36	191,669	10.04
Total farm and farm-related	1,711	25.02	0.43	393,636	20.61
Total employment	6,840	100.00	0.36	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 Harrison 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 Harrison 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 Harrison County.

Table 3 shows that, in 2002, the total output value of Harrison County's agricultural production industry was \$107.653 million. \$44.399 million of this output (41.24 percent of the total output value) was the value added to the output by Harrison 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). 57.35 percent of this value added, or \$25.463 million, was paid out as compensation to the 1,114 production agriculture jobs in Harrison 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

Harrison County		Labor		Value-Added	
Agricultural Production	Output*	Jobs	Income*	Value*	Pct. Of Tot.
Oilseeds	30.751	249	10.183	16.533	6.91
Grain	50.607	616	12.570	22.918	9.58
Other Crops	4.409	17	1.283	2.653	1.11
Cattle	14.967	86	0.403	1.030	0.43
Poultry	0.000	0	0.000	0.000	0.00
Hogs and Pigs	6.310	120	0.682	0.980	0.41
Other Ag Production	0.609	26	0.342	0.285	0.12
Sum of Ag Production	107.653	1,114	25.463	44.399	18.57
Primary Food Processing					
Crop	0.000	0	0.000	0.000	0.00
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.	0.000	0	0.000	0.000	0.00
Other Food/Ag Processing					
Animal and Pet Foods	0.000	0	0.000	0.000	0.00
Other Food Processing	0.000	0	0.000	0.000	0.00
Sum of Other Ag Proc.	0.000	0	0.000	0.000	0.00
Ag Input Manufacturing					
Ag Chemical and Fertilizer	0.330	2	0.021	0.032	0.01
Farm Machinery	0.000	0	0.000	0.000	0.00
Sum of Ag Input Mfg.	0.330	2	0.021	0.032	0.01
Sum of All Agri-food Ind.	107.983	1,116	25.484	44.431	18.58
NonAg Industries	345.369	4,462	125.202	194.711	81.42
Totals	453.352	5,578	150.686	239.142	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 Harrison County's agri-food industry output was \$107.983 million, or 23.82 percent of Harrison County's total industrial production. Of this, \$44.431 million (41.15 percent) was value added within these industries in Harrison County. \$25.484 million of this value added was paid out as wages and salaries to the 1,116 agri-food industry jobs in the county.

Overall, Table 3 shows that Harrison County's agri-food industries directly accounted for 23.82 percent of the county's total output, 18.58 percent of total value added, 16.91 percent of labor income, and 20.00 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

Harrison County	Value Added				
	As a Percent of				
	Nonhousehold				
Agricultural Production	Output*	Income*	Value Added*	Total V.A.	Demand
Oilseeds	39.327	15.703	21.916	9.16	12.49
Grain	62.138	20.938	30.385	12.71	17.32
Other Crops	1.658	0.659	1.002	0.42	0.57
Cattle	20.946	2.923	4.777	2.00	2.72
Poultry	0.000	0.000	0.000	0.00	0.00
Hogs and Pigs	8.689	1.644	2.461	1.03	1.40
Other Ag Production	0.286	0.054	0.081	0.03	0.05
Sum of Ag Production	133.045	41.922	60.622	25.35	34.55
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	0.000	0.000	0.000	0.00	0.00
Sum of Primary Food Proc.	0.000	0.000	0.000	0.00	0.00
Other Food/Ag Processing					
Animal and Pet Foods	0.000	0.000	0.000	0.00	0.00
Other Food Processing	0.000	0.000	0.000	0.00	0.00
Sum of Other Ag Proc.	0.000	0.000	0.000	0.00	0.00
Ag Input Manufacturing					
Ag Chemical and Fertilizer	0.319	0.041	0.060	0.03	0.03
Farm Machinery	0.000	0.000	0.000	0.00	0.00
Sum of Ag Input Mfg.	0.319	0.041	0.060	0.03	0.03
Sum of All Agri-food Ind.	133.364	41.963	60.683	25.38	34.59
NonAg Industries	216.548	84.808	114.760	47.99	65.41
Household Consumption	103.440	267.623	63.699	26.64	36.31
Totals	453.352	394.394	239.142	100.00	136.31

* 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 Harrison County's agricultural production industry was \$133.045 million. \$60.622 million of this output (45.57 percent of the total output value) was the value added to the output by economic activity within Harrison County (value added). The remainder came from inputs purchased from out-of-county sources. 69.15 percent of this value added, or \$41.922 million, was paid out as personal income to residents of Harrison 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 Harrison County's agri-food industry output was \$133.364 million, or 29.42 percent of Harrison County's total industrial production. Of this, \$60.683 million (45.50 percent) was value added within these industries in Harrison County. \$41.963 million of this value added was paid out as personal income.

Overall, Table 4 shows that exports from Harrison County's agri-food industries accounted for 29.42 percent of the county's total output, 25.38 percent of total value added, and 10.64 percent of the county's personal income.

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

	Harrison County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold*	111,191	117,864	12,273,634	12,162,165
Value of Crops Sold*	84,811	86,465	6,071,272	6,381,676
Total Cropland Harvested (acres)	337,240	318,423	23,994,343	24,008,826
Corn for grain	168,935	157,862	11,761,392	11,930,542
Corn for silage and green-chop	1,901	1,331	247,269	244,913
Soybeans	156,052	150,646	10,418,621	10,258,681
Oats	328	463	143,513	214,485
Harvested forage crops	10,269	(NA)	1,533,027	(NA)
Bushels harvested				
Corn	24,459,493	20,153,771	1,851,276,224	1,581,093,092
Soybeans	6,633,689	6,383,926	487,380,897	459,309,682
Oats	21,089	31,354	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 Harrison County crop inventories and sales for 1997 and 2002. State statistics are included for comparison. Table 6 provides similar information for Harrison 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

	Harrison County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold	111,191	117,864	12,273,634	12,162,165
Value of Livestock and Livestock Products Sold*	26,380	31,398	6,202,362	5,780,489
Hogs and Pigs				
Total inventory	42,545	64,775	15,486,531	14,513,319
Inventory of breeding stock	1,752	8,280	1,145,323	1,354,166
Number sold	159,984	168,250	41,232,492	27,340,921
Value of sales*	11,557	15,119	3,078,455	3,012,764
Cattle and Calves				
Total inventory	33,874	34,223	3,535,945	3,717,394
Beef cows	12,001	12,130	987,670	1,051,178
Milk cows	23	84	206,965	222,090
Number sold	22,450	26,481	2,929,704	2,936,978
Value of sales*	14,453	16,014	2,119,935	1,886,416
Value of Dairy Products Sold*	(D)	126	442,431	407,897
Poultry and Poultry Products				
Value of sales*	30	9	511,949	414,587
Inventory of layers 20 weeks and older	763	616	38,650,210	21,514,768
Broiler and meat-type chicken inventory	2,690	560	1,730,091	1,023,349
Broiler and meat-type chickens sold	(D)	(D)	9,558,127	6,919,963
Turkey inventory	-	-	3,681,862	2,552,845
Turkeys sold	-	-	9,145,415	7,279,822
Sheep and Goats and Related Products				
Value of sales	46	(NA)	23,366	(NA)
Inventory of sheep and lambs	865	507	249,908	272,913
Number of sheep and lambs sold	714	399	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 Harrison 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	10,654	74,488	85,142	(NA)	(NA)	(NA)
1991	8,765	78,108	86,873	-1,889	3,620	1,731
1992	24,675	84,156	108,831	15,910	6,048	21,958
1993	7,573	89,559	97,132	-17,102	5,403	-11,699
1994	24,907	94,687	119,594	17,334	5,128	22,462
1995	10,978	98,813	109,791	-13,929	4,126	-9,803
1996	43,832	103,002	146,834	32,854	4,189	37,043
1997	35,844	109,177	145,021	-7,988	6,175	-1,813
1998	14,784	119,807	134,591	-21,060	10,630	-10,430
1999	6,240	123,852	130,092	-8,544	4,045	-4,499
2000	11,460	132,360	143,820	5,220	8,508	13,728
2001	4,920	131,933	136,853	-6,540	-427	-6,967
2002	11,427	134,455	145,882	6,507	2,522	9,029
2003	5,253	138,492	143,745	-6,174	4,037	-2,137

Data from the US Bureau of Economic Analysis