

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

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This summary report provides county-level statistics for Louisa 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 Louisa County had 601 farms in 2002. These farms averaged 334 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 Louisa County was \$786,237 in 2002, compared to \$808,152 for Iowa and \$604,403, nationwide. In 2002, Louisa County farms marketed an average of \$117,008 worth of farm products according to the US Census of Agriculture.

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

	Louisa County		Iowa		United States	
	2002	1997	2002	1997	2002	1997
Number of farms	601	639	90,655	96,705	2,128,982	2,215,876
Land in farms (acres)	200,954	208,106	31,729,490	32,313,119	938,279,056	954,752,502
Average farm size (acres)	334	326	350	334	441	431
Market value, per farm, of						
Land and buildings (\$)	688,491	477,616	707,730	559,678	537,833	416,007
Machinery and equipment (\$)	97,746	85,527	100,422	79,607	66,570	53,861
Farm products sold (\$)	117,008	128,760	135,388	125,766	94,245	90,880

Table 2 shows employment data for Louisa 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 Louisa 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)

	Louisa County			Iowa	
	Jobs	County total	As a percent of State Category	Jobs	% of state total
Farm and closely-related	1,678	29.72	0.83	201,967	10.57
Peripherally-related	355	6.29	0.19	191,669	10.04
Total farm and farm-related	2,033	36.01	0.52	393,636	20.61
Total employment	5,647	100.00	0.30	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 Louisa 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 Louisa 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 Louisa County.

Table 3 shows that, in 2002, the total output value of Louisa County's agricultural production industry was \$63.604 million. \$24.856 million of this output (39.08 percent of the total output value) was the value added to the output by Louisa 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). 56.13 percent of this value added, or \$13.951 million, was paid out as compensation to the 757 production agriculture jobs in Louisa 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

Louisa County		Labor		Value-Added	
Agricultural Production	Output*	Jobs	Income*	Value*	Pct. Of Tot.
Oilseeds	14.029	113	4.633	7.543	3.62
Grain	23.250	281	5.684	10.529	5.06
Other Crops	5.386	20	1.458	3.381	1.62
Cattle	4.165	24	0.075	0.291	0.14
Poultry	0.635	1	0.089	0.207	0.10
Hogs and Pigs	13.026	247	1.147	2.023	0.97
Other Ag Production	3.113	71	0.865	0.882	0.42
Sum of Ag Production	63.604	757	13.951	24.856	11.94
Primary Food Processing					
Crop	0.000	0	0.000	0.000	0.00
Dairy	0.000	0	0.000	0.000	0.00
Meat	554.770	1,537	55.624	66.763	32.07
Sum of Primary Food Proc.	554.770	1,537	55.624	66.763	32.07
Other Food/Ag Processing					
Animal and Pet Foods	0.000	0	0.000	0.000	0.00
Other Food Processing	0.291	3	0.080	0.140	0.07
Sum of Other Ag Proc.	0.291	3	0.080	0.140	0.07
Ag Input Manufacturing					
Ag Chemical and Fertilizer	1.154	4	0.089	0.161	0.08
Farm Machinery	0.000	0	0.000	0.000	0.00
Sum of Ag Input Mfg.	1.154	4	0.089	0.161	0.08
Sum of All Agri-food Ind.	619.819	2,301	69.744	91.920	44.16
NonAg Industries	184.406	2,490	71.484	116.253	55.84
Totals	804.225	4,791	141.228	208.173	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 Louisa County's agri-food industry output was \$619.819 million, or 77.07 percent of Louisa County's total industrial production. Of this, \$91.920 million (14.83 percent) was value added within these industries in Louisa County. \$69.744 million of this value added was paid out as wages and salaries to the 2,301 agri-food industry jobs in the county.

Overall, Table 3 shows that Louisa County's agri-food industries directly accounted for 77.07 percent of the county's total output, 44.16 percent of total value added, 49.38 percent of labor income, and 48.02 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

Louisa County	Value Added				
	As a Percent of				
	Nonhousehold				
Agricultural Production	Output*	Income*	Value Added*	Total V.A.	Demand
Oilseeds	16.898	7.196	9.359	4.50	5.17
Grain	26.856	9.592	12.837	6.17	7.09
Other Crops	4.456	1.999	2.776	1.33	1.53
Cattle	0.047	0.006	0.009	0.00	0.00
Poultry	0.469	0.125	0.173	0.08	0.10
Hogs and Pigs	0.979	0.171	0.247	0.12	0.14
Other Ag Production	0.175	0.031	0.045	0.02	0.02
Sum of Ag Production	49.880	19.121	25.445	12.22	14.06
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	625.311	77.522	102.170	49.08	56.45
Sum of Primary Food Proc.	625.311	77.522	102.170	49.08	56.45
Other Food/Ag Processing					
Animal and Pet Foods	0.000	0.000	0.000	0.00	0.00
Other Food Processing	0.049	0.018	0.025	0.01	0.01
Sum of Other Ag Proc.	0.049	0.018	0.025	0.01	0.01
Ag Input Manufacturing					
Ag Chemical and Fertilizer	0.701	0.104	0.142	0.07	0.08
Farm Machinery	0.000	0.000	0.000	0.00	0.00
Sum of Ag Input Mfg.	0.701	0.104	0.142	0.07	0.08
Sum of All Agri-food Ind.	675.941	96.765	127.781	61.38	70.60
NonAg Industries	85.135	43.091	53.203	25.56	29.40
Household Consumption	43.149	164.164	27.189	13.06	15.02
Totals	804.225	304.021	208.173	100.00	115.02

* 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 Louisa County's agricultural production industry was \$49.880 million. \$25.445 million of this output (51.01 percent of the total output value) was the value added to the output by economic activity within Louisa County (value added). The remainder came from inputs purchased from out-of-county sources. 75.14 percent of this value added, or \$19.121 million, was paid out as personal income to residents of Louisa 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 Louisa County's agri-food industry output was \$675.941 million, or 84.05 percent of Louisa County's total industrial production. Of this, \$127.781 million (18.90 percent) was value added within these industries in Louisa County. \$96.765 million of this value added was paid out as personal income.

Overall, Table 4 shows that exports from Louisa County's agri-food industries accounted for 84.05 percent of the county's total output, 61.38 percent of total value added, and 31.83 percent of the county's personal income.

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

	Louisa County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold*	70,322	82,278	12,273,634	12,162,165
Value of Crops Sold*	42,852	43,565	6,071,272	6,381,676
Total Cropland Harvested (acres)	148,070	150,432	23,994,343	24,008,826
Corn for grain	76,758	76,824	11,761,392	11,930,542
Corn for silage and green-chop	606	605	247,269	244,913
Soybeans	64,582	67,642	10,418,621	10,258,681
Oats	575	611	143,513	214,485
Harvested forage crops	4,722	(NA)	1,533,027	(NA)
Bushels harvested				
Corn	11,945,599	9,603,245	1,851,276,224	1,581,093,092
Soybeans	3,026,369	3,032,684	487,380,897	459,309,682
Oats	35,554	44,706	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 Louisa County crop inventories and sales for 1997 and 2002. State statistics are included for comparison. Table 6 provides similar information for Louisa 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

	Louisa County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold	70,322	82,278	12,273,634	12,162,165
Value of Livestock and Livestock Products Sold*	27,470	38,712	6,202,362	5,780,489
Hogs and Pigs				
Total inventory	103,787	88,054	15,486,531	14,513,319
Inventory of breeding stock	14,357	18,757	1,145,323	1,354,166
Number sold	340,079	294,979	41,232,492	27,340,921
Value of sales*	22,544	34,096	3,078,455	3,012,764
Cattle and Calves				
Total inventory	9,824	11,347	3,535,945	3,717,394
Beef cows	(D)	4,651	987,670	1,051,178
Milk cows	(D)	193	206,965	222,090
Number sold	6,224	7,010	2,929,704	2,936,978
Value of sales*	4,022	4,166	2,119,935	1,886,416
Value of Dairy Products Sold*	(D)	146	442,431	407,897
Poultry and Poultry Products				
Value of sales*	(D)	(D)	511,949	414,587
Inventory of layers 20 weeks and older	217	94	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	(D)	(D)	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	145	(NA)	23,366	(NA)
Inventory of sheep and lambs	999	1,106	249,908	272,913
Number of sheep and lambs sold	1,275	778	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 Louisa 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	14,509	89,189	103,698	(NA)	(NA)	(NA)
1991	6,146	93,435	99,581	-8,363	4,246	-4,117
1992	13,996	95,916	109,912	7,850	2,481	10,331
1993	7,867	99,496	107,363	-6,129	3,580	-2,549
1994	18,804	105,648	124,452	10,937	6,152	17,089
1995	10,314	115,609	125,923	-8,490	9,961	1,471
1996	24,124	112,171	136,295	13,810	-3,438	10,372
1997	27,400	104,529	131,929	3,276	-7,642	-4,366
1998	17,021	106,153	123,174	-10,379	1,624	-8,755
1999	11,559	112,584	124,143	-5,462	6,431	969
2000	12,067	116,875	128,942	508	4,291	4,799
2001	8,994	121,419	130,413	-3,073	4,544	1,471
2002	10,361	128,569	138,930	1,367	7,150	8,517
2003	6,837	132,945	139,782	-3,524	4,376	852

Data from the US Bureau of Economic Analysis