

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

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This summary report provides county-level statistics for Fremont 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 Fremont County had 547 farms in 2002. These farms averaged 582 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 Fremont County was \$1,033,193 in 2002, compared to \$808,152 for Iowa and \$604,403, nationwide. In 2002, Fremont County farms marketed an average of \$114,207 worth of farm products according to the US Census of Agriculture.

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

	Fremont County		Iowa		United States	
	2002	1997	2002	1997	2002	1997
Number of farms	547	607	90,655	96,705	2,128,982	2,215,876
Land in farms (acres)	318,306	335,831	31,729,490	32,313,119	938,279,056	954,752,502
Average farm size (acres)	582	553	350	334	441	431
Market value, per farm, of						
Land and buildings (\$)	920,640	718,654	707,730	559,678	537,833	416,007
Machinery and equipment (\$)	112,553	93,581	100,422	79,607	66,570	53,861
Farm products sold (\$)	114,207	149,727	135,388	125,766	94,245	90,880

Table 2 shows employment data for Fremont 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 Fremont 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)

	Fremont County			Iowa	
	Jobs	County total	As a percent of State Category	Jobs	% of state total
Farm and closely-related	991	19.31	0.49	201,967	10.57
Peripherally-related	350	6.81	0.18	191,669	10.04
Total farm and farm-related	1,341	26.13	0.34	393,636	20.61
Total employment	5,132	100.00	0.27	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 Fremont 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 Fremont 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 Fremont County.

Table 3 shows that, in 2002, the total output value of Fremont County's agricultural production industry was \$68.795 million. \$26.510 million of this output (38.53 percent of the total output value) was the value added to the output by Fremont 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). 64.87 percent of this value added, or \$17.197 million, was paid out as compensation to the 824 production agriculture jobs in Fremont 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

Fremont County			Labor	Value-Added	
Agricultural Production	Output*	Jobs	Income*	Value*	Pct. Of Tot.
Oilseeds	21.729	196	7.274	11.682	5.47
Grain	24.321	331	6.402	11.014	5.15
Other Crops	2.326	10	0.827	1.342	0.63
Cattle	10.586	69	0.650	0.685	0.32
Poultry	0.477	1	0.092	0.156	0.07
Hogs and Pigs	7.612	162	1.402	1.182	0.55
Other Ag Production	1.744	55	0.550	0.449	0.21
Sum of Ag Production	68.795	824	17.197	26.510	12.40
Primary Food Processing					
Crop	35.697	43	2.398	6.050	2.83
Dairy	0.000	0	0.000	0.000	0.00
Meat	1.732	5	0.101	0.121	0.06
Sum of Primary Food Proc.	37.429	48	2.499	6.171	2.89
Other Food/Ag Processing					
Animal and Pet Foods	0.000	0	0.000	0.000	0.00
Other Food Processing	73.642	261	9.648	15.863	7.42
Sum of Other Ag Proc.	73.642	261	9.648	15.863	7.42
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.	179.866	1,133	29.344	48.544	22.71
NonAg Industries	347.985	3,215	105.608	165.211	77.29
Totals	527.851	4,348	134.952	213.755	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 Fremont County's agri-food industry output was \$179.866 million, or 34.08 percent of Fremont County's total industrial production. Of this, \$48.544 million (26.99 percent) was value added within these industries in Fremont County. \$29.344 million of this value added was paid out as wages and salaries to the 1,133 agri-food industry jobs in the county.

Overall, Table 3 shows that Fremont County's agri-food industries directly accounted for 34.08 percent of the county's total output, 22.71 percent of total value added, 21.74 percent of labor income, and 26.05 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

Fremont County	Value Added				
	As a Percent of				
	Nonhousehold				
Agricultural Production	Output*	Income*	Value Added*	Total V.A.	Demand
Oilseeds	25.197	9.766	13.859	6.48	6.94
Grain	17.253	5.607	8.224	3.85	4.12
Other Crops	0.454	0.180	0.264	0.12	0.13
Cattle	10.765	1.293	1.896	0.89	0.95
Poultry	0.008	0.002	0.003	0.00	0.00
Hogs and Pigs	7.988	1.556	1.935	0.91	0.97
Other Ag Production	1.422	0.277	0.345	0.16	0.17
Sum of Ag Production	63.088	18.681	26.526	12.41	13.28
Primary Food Processing					
Crop	52.661	9.403	15.027	7.03	7.53
Dairy	0.000	0.000	0.000	0.00	0.00
Meat	1.948	0.204	0.285	0.13	0.14
Sum of Primary Food Proc.	54.609	9.607	15.312	7.16	7.67
Other Food/Ag Processing					
Animal and Pet Foods	0.000	0.000	0.000	0.00	0.00
Other Food Processing	87.845	15.542	23.413	10.95	11.72
Sum of Other Ag Proc.	87.845	15.542	23.413	10.95	11.72
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.	205.542	43.830	65.250	30.53	32.68
NonAg Industries	299.527	93.870	134.438	62.89	67.32
Household Consumption	22.783	79.826	14.067	6.58	7.04
Totals	527.851	217.526	213.755	100.00	107.04

* 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 Fremont County's agricultural production industry was \$63.088 million. \$26.526 million of this output (42.05 percent of the total output value) was the value added to the output by economic activity within Fremont County (value added). The remainder came from inputs purchased from out-of-county sources. 70.43 percent of this value added, or \$18.681 million, was paid out as personal income to residents of Fremont 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 Fremont County's agri-food industry output was \$205.542 million, or 38.94 percent of Fremont County's total industrial production. Of this, \$65.250 million (31.75 percent) was value added within these industries in Fremont County. \$43.830 million of this value added was paid out as personal income.

Overall, Table 4 shows that exports from Fremont County's agri-food industries accounted for 38.94 percent of the county's total output, 30.53 percent of total value added, and 20.15 percent of the county's personal income.

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

	Fremont County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold*	62,471	90,885	12,273,634	12,162,165
Value of Crops Sold*	49,727	68,237	6,071,272	6,381,676
Total Cropland Harvested (acres)	256,220	246,541	23,994,343	24,008,826
Corn for grain	121,196	117,531	11,761,392	11,930,542
Corn for silage and green-chop	852	514	247,269	244,913
Soybeans	127,516	122,884	10,418,621	10,258,681
Oats	30	97	143,513	214,485
Harvested forage crops	5,383	(NA)	1,533,027	(NA)
Bushels harvested				
Corn	10,974,422	15,294,828	1,851,276,224	1,581,093,092
Soybeans	4,687,460	5,171,079	487,380,897	459,309,682
Oats	1,900	6,224	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 Fremont County crop inventories and sales for 1997 and 2002. State statistics are included for comparison. Table 6 provides similar information for Fremont 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

	Fremont County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold	62,471	90,885	12,273,634	12,162,165
Value of Livestock and Livestock Products Sold*	12,744	22,647	6,202,362	5,780,489
Hogs and Pigs				
Total inventory	(D)	23,911	15,486,531	14,513,319
Inventory of breeding stock	515	2,193	1,145,323	1,354,166
Number sold	(D)	40,861	41,232,492	27,340,921
Value of sales*	2,052	4,838	3,078,455	3,012,764
Cattle and Calves				
Total inventory	18,835	23,912	3,535,945	3,717,394
Beef cows	6,070	(D)	987,670	1,051,178
Milk cows	168	(D)	206,965	222,090
Number sold	14,778	27,041	2,929,704	2,936,978
Value of sales*	10,223	17,618	2,119,935	1,886,416
Value of Dairy Products Sold*	374	(D)	442,431	407,897
Poultry and Poultry Products				
Value of sales*	(D)	(D)	511,949	414,587
Inventory of layers 20 weeks and older	223	173	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	-	-	9,145,415	7,279,822
Sheep and Goats and Related Products				
Value of sales	41	(NA)	23,366	(NA)
Inventory of sheep and lambs	729	704	249,908	272,913
Number of sheep and lambs sold	953	2,171	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 Fremont 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	11,949	64,111	76,060	(NA)	(NA)	(NA)
1991	13,931	66,419	80,350	1,982	2,308	4,290
1992	19,835	78,789	98,624	5,904	12,370	18,274
1993	-2,411	88,422	86,011	-22,246	9,633	-12,613
1994	17,987	98,409	116,396	20,398	9,987	30,385
1995	4,905	104,803	109,708	-13,082	6,394	-6,688
1996	27,375	100,612	127,987	22,470	-4,191	18,279
1997	23,307	103,916	127,223	-4,068	3,304	-764
1998	12,365	116,913	129,278	-10,942	12,997	2,055
1999	7,909	130,773	138,682	-4,456	13,860	9,404
2000	7,754	134,788	142,542	-155	4,015	3,860
2001	5,785	117,837	123,622	-1,969	-16,951	-18,920
2002	5,964	128,721	134,685	179	10,884	11,063
2003	12,504	143,413	155,917	6,540	14,692	21,232

Data from the US Bureau of Economic Analysis