

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

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This summary report provides county-level statistics for Floyd 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 Floyd County had 895 farms in 2002. These farms averaged 325 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 Floyd County was \$882,216 in 2002, compared to \$808,152 for Iowa and \$604,403, nationwide. In 2002, Floyd County farms marketed an average of \$129,964 worth of farm products according to the US Census of Agriculture.

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

	Floyd County		Iowa		United States	
	2002	1997	2002	1997	2002	1997
Number of farms	895	908	90,655	96,705	2,128,982	2,215,876
Land in farms (acres)	291,282	310,225	31,729,490	32,313,119	938,279,056	954,752,502
Average farm size (acres)	325	342	350	334	441	431
Market value, per farm, of						
Land and buildings (\$)	769,694	607,269	707,730	559,678	537,833	416,007
Machinery and equipment (\$)	112,522	88,682	100,422	79,607	66,570	53,861
Farm products sold (\$)	129,964	127,538	135,388	125,766	94,245	90,880

Table 2 shows employment data for Floyd 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 Floyd 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)

	Floyd County			Iowa	
	Jobs	As a percent of County total	State Category	Jobs	% of state total
Farm and closely-related	1,237	14.45	0.61	201,967	10.57
Peripherally-related	684	7.99	0.36	191,669	10.04
Total farm and farm-related	1,921	22.44	0.49	393,636	20.61
Total employment	8,559	100.00	0.45	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 Floyd 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 Floyd 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 Floyd County.

Table 3 shows that, in 2002, the total output value of Floyd County's agricultural production industry was \$102.700 million. \$38.389 million of this output (37.38 percent of the total output value) was the value added to the output by Floyd 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). 63.02 percent of this value added, or \$24.194 million, was paid out as compensation to the 1,185 production agriculture jobs in Floyd 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

Floyd County		Labor		Value-Added	
Agricultural Production	Output*	Jobs	Income*	Value*	Pct. Of Tot.
Oilseeds	24.951	200	8.319	13.415	3.35
Grain	40.906	493	10.545	18.525	4.62
Other Crops	3.649	14	1.354	2.296	0.57
Cattle	11.243	63	0.548	0.744	0.19
Poultry	0.000	0	0.000	0.000	0.00
Hogs and Pigs	18.634	352	2.910	2.894	0.72
Other Ag Production	3.317	63	0.518	0.515	0.13
Sum of Ag Production	102.700	1,185	24.194	38.389	9.57
Primary Food Processing					
Crop	0.000	0	0.000	0.000	0.00
Dairy	0.000	0	0.000	0.000	0.00
Meat	72.940	444	16.922	17.747	4.43
Sum of Primary Food Proc.	72.940	444	16.922	17.747	4.43
Other Food/Ag Processing					
Animal and Pet Foods	1.650	3	0.099	0.188	0.05
Other Food Processing	0.000	0	0.000	0.000	0.00
Sum of Other Ag Proc.	1.650	3	0.099	0.188	0.05
Ag Input Manufacturing					
Ag Chemical and Fertilizer	0.000	0	0.000	0.000	0.00
Farm Machinery	4.686	9	2.556	2.874	0.72
Sum of Ag Input Mfg.	4.686	9	2.556	2.874	0.72
Sum of All Agri-food Ind.	181.976	1,641	43.771	59.198	14.76
NonAg Industries	674.348	6,648	202.401	341.763	85.24
Totals	856.324	8,289	246.172	400.961	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 Floyd County's agri-food industry output was \$181.976 million, or 21.25 percent of Floyd County's total industrial production. Of this, \$59.198 million (32.53 percent) was value added within these industries in Floyd County. \$43.771 million of this value added was paid out as wages and salaries to the 1,641 agri-food industry jobs in the county.

Overall, Table 3 shows that Floyd County's agri-food industries directly accounted for 21.25 percent of the county's total output, 14.76 percent of total value added, 17.78 percent of labor income, and 19.80 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

Floyd County	Value Added				
	As a Percent of				
	Nonhousehold				
Agricultural Production	Output*	Income*	Value Added*	Total V.A.	Demand
Oilseeds	31.229	11.937	17.322	4.32	4.87
Grain	48.016	15.410	23.271	5.80	6.54
Other Crops	1.406	0.582	0.878	0.22	0.25
Cattle	13.369	1.620	2.578	0.64	0.72
Poultry	0.000	0.000	0.000	0.00	0.00
Hogs and Pigs	24.322	4.678	6.381	1.59	1.79
Other Ag Production	4.329	0.833	1.136	0.28	0.32
Sum of Ag Production	122.671	35.059	51.565	12.86	14.49
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	79.660	18.043	22.913	5.71	6.44
Sum of Primary Food Proc.	79.660	18.043	22.913	5.71	6.44
Other Food/Ag Processing					
Animal and Pet Foods	2.180	0.292	0.445	0.11	0.12
Other Food Processing	0.000	0.000	0.000	0.00	0.00
Sum of Other Ag Proc.	2.180	0.292	0.445	0.11	0.12
Ag Input Manufacturing					
Ag Chemical and Fertilizer	0.000	0.000	0.000	0.00	0.00
Farm Machinery	5.637	2.852	3.451	0.86	0.97
Sum of Ag Input Mfg.	5.637	2.852	3.451	0.86	0.97
Sum of All Agri-food Ind.	210.149	56.246	78.374	19.55	22.02
NonAg Industries	573.030	187.169	277.596	69.23	77.98
Household Consumption	73.145	198.993	44.991	11.22	12.64
Totals	856.324	442.408	400.961	100.00	112.64

* 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 Floyd County's agricultural production industry was \$122.671 million. \$51.565 million of this output (42.04 percent of the total output value) was the value added to the output by economic activity within Floyd County (value added). The remainder came from inputs purchased from out-of-county sources. 67.99 percent of this value added, or \$35.059 million, was paid out as personal income to residents of Floyd 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 Floyd County's agri-food industry output was \$210.149 million, or 24.54 percent of Floyd County's total industrial production. Of this, \$78.374 million (37.29 percent) was value added within these industries in Floyd County. \$56.246 million of this value added was paid out as personal income.

Overall, Table 4 shows that exports from Floyd County's agri-food industries accounted for 24.54 percent of the county's total output, 19.55 percent of total value added, and 12.71 percent of the county's personal income.

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

	Floyd County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold*	116,318	115,805	12,273,634	12,162,165
Value of Crops Sold*	71,037	78,906	6,071,272	6,381,676
Total Cropland Harvested (acres)	251,429	264,434	23,994,343	24,008,826
Corn for grain	127,087	137,175	11,761,392	11,930,542
Corn for silage and green-chop	2,231	2,462	247,269	244,913
Soybeans	114,046	119,453	10,418,621	10,258,681
Oats	1,126	1,746	143,513	214,485
Harvested forage crops	7,358	(NA)	1,533,027	(NA)
Bushels harvested				
Corn	20,946,610	18,646,557	1,851,276,224	1,581,093,092
Soybeans	5,382,644	5,171,570	487,380,897	459,309,682
Oats	91,012	117,755	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 Floyd County crop inventories and sales for 1997 and 2002. State statistics are included for comparison. Table 6 provides similar information for Floyd 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

	Floyd County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold	116,318	115,805	12,273,634	12,162,165
Value of Livestock and Livestock Products Sold*	45,281	36,898	6,202,362	5,780,489
Hogs and Pigs				
Total inventory	149,028	104,533	15,486,531	14,513,319
Inventory of breeding stock	10,596	11,791	1,145,323	1,354,166
Number sold	432,514	241,443	41,232,492	27,340,921
Value of sales*	29,743	24,332	3,078,455	3,012,764
Cattle and Calves				
Total inventory	17,099	16,798	3,535,945	3,717,394
Beef cows	3,397	4,275	987,670	1,051,178
Milk cows	1,018	994	206,965	222,090
Number sold	14,097	12,173	2,929,704	2,936,978
Value of sales*	10,857	8,424	2,119,935	1,886,416
Value of Dairy Products Sold*	(D)	1,863	442,431	407,897
Poultry and Poultry Products				
Value of sales*	(D)	(D)	511,949	414,587
Inventory of layers 20 weeks and older	3,395	(D)	38,650,210	21,514,768
Broiler and meat-type chicken inventory	460	485	1,730,091	1,023,349
Broiler and meat-type chickens sold	41,911	(D)	9,558,127	6,919,963
Turkey inventory	26	(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	24	(NA)	23,366	(NA)
Inventory of sheep and lambs	527	1,058	249,908	272,913
Number of sheep and lambs sold	388	804	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 Floyd 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	29,270	139,450	168,720	(NA)	(NA)	(NA)
1991	20,862	143,655	164,517	-8,408	4,205	-4,203
1992	26,668	148,731	175,399	5,806	5,076	10,882
1993	6,533	152,068	158,601	-20,135	3,337	-16,798
1994	24,005	147,130	171,135	17,472	-4,938	12,534
1995	18,415	152,867	171,282	-5,590	5,737	147
1996	31,621	161,194	192,815	13,206	8,327	21,533
1997	31,416	163,746	195,162	-205	2,552	2,347
1998	27,771	163,148	190,919	-3,645	-598	-4,243
1999	10,256	177,512	187,768	-17,515	14,364	-3,151
2000	12,105	181,542	193,647	1,849	4,030	5,879
2001	8,206	203,385	211,591	-3,899	21,843	17,944
2002	14,001	218,295	232,296	5,795	14,910	20,705
2003	6,096	232,237	238,333	-7,905	13,942	6,037

Data from the US Bureau of Economic Analysis