

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

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This summary report provides county-level statistics for Butler 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 Butler County had 1,076 farms in 2002. These farms averaged 305 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 Butler County was \$746,529 in 2002, compared to \$808,152 for Iowa and \$604,403, nationwide. In 2002, Butler County farms marketed an average of \$125,040 worth of farm products according to the US Census of Agriculture.

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

	Butler County		Iowa		United States	
	2002	1997	2002	1997	2002	1997
Number of farms	1,076	1,158	90,655	96,705	2,128,982	2,215,876
Land in farms (acres)	327,708	334,766	31,729,490	32,313,119	938,279,056	954,752,502
Average farm size (acres)	305	289	350	334	441	431
Market value, per farm, of						
Land and buildings (\$)	664,074	510,668	707,730	559,678	537,833	416,007
Machinery and equipment (\$)	82,455	66,511	100,422	79,607	66,570	53,861
Farm products sold (\$)	125,040	115,376	135,388	125,766	94,245	90,880

Table 2 shows employment data for Butler 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 Butler 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)

	Butler County			Iowa	
	Jobs	As a percent of County total	State Category	Jobs	% of state total
Farm and closely-related	1,515	21.95	0.75	201,967	10.57
Peripherally-related	367	5.32	0.19	191,669	10.04
Total farm and farm-related	1,881	27.27	0.48	393,636	20.61
Total employment	6,900	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 Butler 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 Butler 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 Butler County.

Table 3 shows that, in 2002, the total output value of Butler County's agricultural production industry was \$123.266 million. \$45.078 million of this output (36.57 percent of the total output value) was the value added to the output by Butler 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). 54.88 percent of this value added, or \$24.739 million, was paid out as compensation to the 1,490 production agriculture jobs in Butler 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

Butler County		Labor		Value-Added	
Agricultural Production	Output*	Jobs	Income*	Value*	Pct. Of Tot.
Oilseeds	28.614	224	9.412	15.384	5.87
Grain	46.715	551	11.173	21.156	8.07
Other Crops	2.661	9	0.583	1.493	0.57
Cattle	12.119	67	0.067	0.863	0.33
Poultry	0.483	1	0.061	0.158	0.06
Hogs and Pigs	28.456	526	1.728	4.419	1.69
Other Ag Production	4.218	112	1.715	1.605	0.61
Sum of Ag Production	123.266	1,490	24.739	45.078	17.20
Primary Food Processing					
Crop	0.000	0	0.000	0.000	0.00
Dairy	0.000	0	0.000	0.000	0.00
Meat	0.673	5	0.079	0.083	0.03
Sum of Primary Food Proc.	0.673	5	0.079	0.083	0.03
Other Food/Ag Processing					
Animal and Pet Foods	0.000	0	0.000	0.000	0.00
Other Food Processing	0.387	6	0.091	0.160	0.06
Sum of Other Ag Proc.	0.387	6	0.091	0.160	0.06
Ag Input Manufacturing					
Ag Chemical and Fertilizer	0.000	0	0.000	0.000	0.00
Farm Machinery	94.956	197	49.437	55.223	21.07
Sum of Ag Input Mfg.	94.956	197	49.437	55.223	21.07
Sum of All Agri-food Ind.	219.282	1,698	74.346	100.544	38.36
NonAg Industries	261.864	3,402	96.987	161.573	61.64
Totals	481.146	5,100	171.333	262.117	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 Butler County's agri-food industry output was \$219.282 million, or 45.57 percent of Butler County's total industrial production. Of this, \$100.544 million (45.85 percent) was value added within these industries in Butler County. \$74.346 million of this value added was paid out as wages and salaries to the 1,698 agri-food industry jobs in the county.

Overall, Table 3 shows that Butler County's agri-food industries directly accounted for 45.57 percent of the county's total output, 38.36 percent of total value added, 43.39 percent of labor income, and 33.30 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

Butler County	Value Added				
	As a Percent of				
	Nonhousehold				
Agricultural Production	Output*	Income*	Value Added*	Total V.A.	Demand
Oilseeds	35.666	14.813	20.101	7.67	9.19
Grain	54.994	19.316	27.200	10.38	12.43
Other Crops	0.509	0.194	0.295	0.11	0.13
Cattle	15.633	1.825	3.128	1.19	1.43
Poultry	0.179	0.046	0.069	0.03	0.03
Hogs and Pigs	36.979	6.119	9.697	3.70	4.43
Other Ag Production	3.014	0.500	0.792	0.30	0.36
Sum of Ag Production	146.975	42.813	61.282	23.38	28.00
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	0.078	0.013	0.019	0.01	0.01
Sum of Primary Food Proc.	0.078	0.013	0.019	0.01	0.01
Other Food/Ag Processing					
Animal and Pet Foods	0.000	0.000	0.000	0.00	0.00
Other Food Processing	0.056	0.018	0.026	0.01	0.01
Sum of Other Ag Proc.	0.056	0.018	0.026	0.01	0.01
Ag Input Manufacturing					
Ag Chemical and Fertilizer	0.000	0.000	0.000	0.00	0.00
Farm Machinery	119.625	60.287	71.536	27.29	32.69
Sum of Ag Input Mfg.	119.625	60.287	71.536	27.29	32.69
Sum of All Agri-food Ind.	266.734	103.131	132.861	50.69	60.71
NonAg Industries	149.503	64.468	85.979	32.80	39.29
Household Consumption	64.909	226.664	43.276	16.51	19.78
Totals	481.146	394.264	262.117	100.00	119.78

* 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 Butler County's agricultural production industry was \$146.975 million. \$61.282 million of this output (41.70 percent of the total output value) was the value added to the output by economic activity within Butler County (value added). The remainder came from inputs purchased from out-of-county sources. 69.86 percent of this value added, or \$42.813 million, was paid out as personal income to residents of Butler 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 Butler County's agri-food industry output was \$266.734 million, or 55.44 percent of Butler County's total industrial production. Of this, \$132.861 million (49.81 percent) was value added within these industries in Butler County. \$103.131 million of this value added was paid out as personal income.

Overall, Table 4 shows that exports from Butler County's agri-food industries accounted for 55.44 percent of the county's total output, 50.69 percent of total value added, and 26.16 percent of the county's personal income.

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

	Butler County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold*	134,543	133,606	12,273,634	12,162,165
Value of Crops Sold*	74,534	75,774	6,071,272	6,381,676
Total Cropland Harvested (acres)	277,250	277,238	23,994,343	24,008,826
Corn for grain	141,955	142,673	11,761,392	11,930,542
Corn for silage and green-chop	1,359	1,913	247,269	244,913
Soybeans	125,782	123,916	10,418,621	10,258,681
Oats	1,474	2,404	143,513	214,485
Harvested forage crops	7,812	(NA)	1,533,027	(NA)
Bushels harvested				
Corn	23,928,365	18,855,341	1,851,276,224	1,581,093,092
Soybeans	6,172,773	5,452,637	487,380,897	459,309,682
Oats	120,669	168,755	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 Butler County crop inventories and sales for 1997 and 2002. State statistics are included for comparison. Table 6 provides similar information for Butler 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

	Butler County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold	134,543	133,606	12,273,634	12,162,165
Value of Livestock and Livestock Products Sold*	60,009	57,832	6,202,362	5,780,489
Hogs and Pigs				
Total inventory	208,259	177,576	15,486,531	14,513,319
Inventory of breeding stock	3,231	12,883	1,145,323	1,354,166
Number sold	511,508	319,589	41,232,492	27,340,921
Value of sales*	44,886	37,786	3,078,455	3,012,764
Cattle and Calves				
Total inventory	19,103	21,995	3,535,945	3,717,394
Beef cows	4,903	5,384	987,670	1,051,178
Milk cows	1,426	1,827	206,965	222,090
Number sold	15,871	17,544	2,929,704	2,936,978
Value of sales*	11,703	12,267	2,119,935	1,886,416
Value of Dairy Products Sold*	2,450	3,405	442,431	407,897
Poultry and Poultry Products				
Value of sales*	153	2,393	511,949	414,587
Inventory of layers 20 weeks and older	699	(D)	38,650,210	21,514,768
Broiler and meat-type chicken inventory	273	(D)	1,730,091	1,023,349
Broiler and meat-type chickens sold	1,044	9,773	9,558,127	6,919,963
Turkey inventory	(D)	(D)	3,681,862	2,552,845
Turkeys sold	(D)	48,799	9,145,415	7,279,822
Sheep and Goats and Related Products				
Value of sales	538	(NA)	23,366	(NA)
Inventory of sheep and lambs	2,818	3,155	249,908	272,913
Number of sheep and lambs sold	6,963	3,663	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 Butler 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	31,050	75,587	106,637	(NA)	(NA)	(NA)
1991	27,690	81,016	108,706	-3,360	5,429	2,069
1992	35,592	86,213	121,805	7,902	5,197	13,099
1993	11,641	92,768	104,409	-23,951	6,555	-17,396
1994	30,981	93,200	124,181	19,340	432	19,772
1995	27,656	94,368	122,024	-3,325	1,168	-2,157
1996	53,583	94,004	147,587	25,927	-364	25,563
1997	46,378	100,846	147,224	-7,205	6,842	-363
1998	35,902	109,378	145,280	-10,476	8,532	-1,944
1999	17,273	112,923	130,196	-18,629	3,545	-15,084
2000	21,851	115,055	136,906	4,578	2,132	6,710
2001	19,581	111,483	131,064	-2,270	-3,572	-5,842
2002	21,541	117,533	139,074	1,960	6,050	8,010
2003	12,116	122,339	134,455	-9,425	4,806	-4,619

Data from the US Bureau of Economic Analysis