

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

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This summary report provides county-level statistics for Mitchell County, Iowa as a supplement to *The Economic Importance of Agri-food Industries in Iowa*<sup>1</sup> (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 Mitchell County had 828 farms in 2002. These farms averaged 349 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 Mitchell County was \$887,553 in 2002, compared to \$808,152 for Iowa and \$604,403, nationwide. In 2002, Mitchell County farms marketed an average of \$186,700 worth of farm products according to the US Census of Agriculture.

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

	Mitchell County		Iowa		United States	
	2002	1997	2002	1997	2002	1997
Number of farms	828	871	90,655	96,705	2,128,982	2,215,876
Land in farms (acres)	289,259	272,196	31,729,490	32,313,119	938,279,056	954,752,502
Average farm size (acres)	349	313	350	334	441	431
Market value, per farm, of						
Land and buildings (\$)	767,313	572,215	707,730	559,678	537,833	416,007
Machinery and equipment (\$)	120,240	85,964	100,422	79,607	66,570	53,861
Farm products sold (\$)	186,700	186,268	135,388	125,766	94,245	90,880

Table 2 shows employment data for Mitchell 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 states<sup>2</sup>. 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 Mitchell County. Detail is restricted in this summary, due to the smaller employment base and privacy issues at the county level.

<sup>1</sup> Mark Imerman, David Swenson, Liesl Eathington, Daniel Otto. Iowa State University Department of Economics. 2005.

<sup>2</sup> 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)

	Mitchell County			Iowa	
	Jobs	County total	As a percent of State Category	Jobs	% of state total
Farm and closely-related	1,472	24.70	0.73	201,967	10.57
Peripherally-related	331	5.56	0.17	191,669	10.04
Total farm and farm-related	1,803	30.25	0.46	393,636	20.61
Total employment	5,961	100.00	0.31	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 Mitchell 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)<sup>3</sup>.

Table 3 provides value estimates for an industry-only aggregation of the economic activity that takes place within Mitchell 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 jobs<sup>4</sup> and labor income (compensation for employees and proprietors) within the agri-food industries in Mitchell County.

Table 3 shows that, in 2002, the total output value of Mitchell County's agricultural production industry was \$169.488 million. \$53.988 million of this output (31.85 percent of the total output value) was the value added to the output by Mitchell 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). 51.59 percent of this value added, or \$27.853 million, was paid out as compensation to the 1,260 production agriculture jobs in Mitchell County.

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<sup>3</sup> 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.

<sup>4</sup> 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

<b>Mitchell County</b>		<b>Labor</b>		<b>Value-Added</b>	
<b>Agricultural Production</b>	<b>Output*</b>	<b>Jobs</b>	<b>Income*</b>	<b>Value*</b>	<b>Pct. Of Tot.</b>
Oilseeds	24.336	144	8.026	13.084	4.83
Grain	42.614	380	10.346	19.298	7.12
Other Crops	9.406	35	3.305	7.169	2.64
Cattle	39.529	167	0.549	2.774	1.02
Poultry	18.137	22	2.458	5.921	2.18
Hogs and Pigs	31.369	439	2.490	4.871	1.80
Other Ag Production	4.097	73	0.679	0.871	0.32
<b>Sum of Ag Production</b>	<b>169.488</b>	<b>1,260</b>	<b>27.853</b>	<b>53.988</b>	<b>19.91</b>
<b>Primary Food Processing</b>					
Crop	76.935	101	7.444	12.301	4.54
Dairy	0.000	0	0.000	0.000	0.00
Meat	0.000	0	0.000	0.000	0.00
<b>Sum of Primary Food Proc.</b>	<b>76.935</b>	<b>101</b>	<b>7.444</b>	<b>12.301</b>	<b>4.54</b>
<b>Other Food/Ag Processing</b>					
Animal and Pet Foods	1.654	3	0.085	0.122	0.04
Other Food Processing	0.000	0	0.000	0.000	0.00
<b>Sum of Other Ag Proc.</b>	<b>1.654</b>	<b>3</b>	<b>0.085</b>	<b>0.122</b>	<b>0.04</b>
<b>Ag Input Manufacturing</b>					
Ag Chemical and Fertilizer	15.174	33	3.322	7.916	2.92
Farm Machinery	1.330	3	0.686	0.771	0.28
<b>Sum of Ag Input Mfg.</b>	<b>16.504</b>	<b>36</b>	<b>4.008</b>	<b>8.687</b>	<b>3.20</b>
<b>Sum of All Agri-food Ind.</b>	<b>264.581</b>	<b>1,400</b>	<b>39.390</b>	<b>75.098</b>	<b>27.70</b>
<b>NonAg Industries</b>	<b>344.197</b>	<b>4,163</b>	<b>122.771</b>	<b>196.030</b>	<b>72.30</b>
<b>Totals</b>	<b>608.778</b>	<b>5,563</b>	<b>162.161</b>	<b>271.128</b>	<b>100.00</b>

\* Numbers represent millions of dollars

If we add food and other ag processing and ag input manufacturing to agricultural production, the value of Mitchell County's agri-food industry output was \$264.581 million, or 43.46 percent of Mitchell County's total industrial production. Of this, \$75.098 million (28.38 percent) was value added within these industries in Mitchell County. \$39.390 million of this value added was paid out as wages and salaries to the 1,400 agri-food industry jobs in the county.

Overall, Table 3 shows that Mitchell County's agri-food industries directly accounted for 43.46 percent of the county's total output, 27.70 percent of total value added, 24.29 percent of labor income, and 25.17 percent of the county's jobs<sup>5</sup>.

<sup>5</sup> 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

Mitchell County	Value Added				
	As a Percent of				
	Nonhousehold				
Agricultural Production	Output*	Income*	Value Added*	Total V.A.	Demand
Oilseeds	30.889	11.887	17.263	6.37	7.14
Grain	39.300	12.531	19.189	7.08	7.94
Other Crops	8.376	3.789	6.168	2.27	2.55
Cattle	49.039	4.928	9.080	3.35	3.76
Poultry	22.169	5.178	8.496	3.13	3.51
Hogs and Pigs	39.743	6.152	10.113	3.73	4.18
Other Ag Production	4.577	0.709	1.165	0.43	0.48
<b>Sum of Ag Production</b>	<b>194.093</b>	<b>45.173</b>	<b>71.474</b>	<b>26.36</b>	<b>29.56</b>
<b>Primary Food Processing</b>					
Crop	99.170	16.869	25.901	9.55	10.71
Dairy	0.000	0.000	0.000	0.00	0.00
Meat	0.000	0.000	0.000	0.00	0.00
<b>Sum of Primary Food Proc.</b>	<b>99.170</b>	<b>16.869</b>	<b>25.901</b>	<b>9.55</b>	<b>10.71</b>
<b>Other Food/Ag Processing</b>					
Animal and Pet Foods	2.050	0.262	0.391	0.14	0.16
Other Food Processing	0.000	0.000	0.000	0.00	0.00
<b>Sum of Other Ag Proc.</b>	<b>2.050</b>	<b>0.262</b>	<b>0.391</b>	<b>0.14</b>	<b>0.16</b>
<b>Ag Input Manufacturing</b>					
Ag Chemical and Fertilizer	15.267	4.895	8.290	3.06	3.43
Farm Machinery	1.282	0.629	0.761	0.28	0.31
<b>Sum of Ag Input Mfg.</b>	<b>16.548</b>	<b>5.524</b>	<b>9.051</b>	<b>3.34</b>	<b>3.74</b>
<b>Sum of All Agri-food Ind.</b>	<b>311.860</b>	<b>67.828</b>	<b>106.817</b>	<b>39.40</b>	<b>44.18</b>
<b>NonAg Industries</b>	<b>251.959</b>	<b>95.849</b>	<b>134.938</b>	<b>49.77</b>	<b>55.82</b>
<b>Household Consumption</b>	<b>44.958</b>	<b>132.467</b>	<b>29.373</b>	<b>10.83</b>	<b>12.15</b>
<b>Totals</b>	<b>608.778</b>	<b>296.143</b>	<b>271.128</b>	<b>100.00</b>	<b>112.15</b>

\* 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 produced<sup>6</sup>. 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 sales<sup>7</sup>.

<sup>6</sup> Goods not sold out of county were counted under the heading of "Household Consumption" and not in industry totals in Table 4.

<sup>7</sup> 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 Mitchell County's agricultural production industry was \$194.093 million. \$71.474 million of this output (36.82 percent of the total output value) was the value added to the output by economic activity within Mitchell County (value added). The remainder came from inputs purchased from out-of-county sources. 63.20 percent of this value added, or \$45.173 million, was paid out as personal income to residents of Mitchell 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 Mitchell County's agri-food industry output was \$311.860 million, or 51.23 percent of Mitchell County's total industrial production. Of this, \$106.817 million (34.25 percent) was value added within these industries in Mitchell County. \$67.828 million of this value added was paid out as personal income.

Overall, Table 4 shows that exports from Mitchell County's agri-food industries accounted for 51.23 percent of the county's total output, 39.40 percent of total value added, and 22.90 percent of the county's personal income.

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

	Mitchell County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold*	154,588	162,240	12,273,634	12,162,165
Value of Crops Sold*	62,431	62,995	6,071,272	6,381,676
Total Cropland Harvested (acres)	249,796	235,243	23,994,343	24,008,826
Corn for grain	128,290	124,148	11,761,392	11,930,542
Corn for silage and green-chop	4,749	6,670	247,269	244,913
Soybeans	106,807	94,937	10,418,621	10,258,681
Oats	2,020	3,383	143,513	214,485
Harvested forage crops	7,557	(NA)	1,533,027	(NA)
Bushels harvested				
Corn	21,847,644	17,872,556	1,851,276,224	1,581,093,092
Soybeans	5,249,965	4,293,642	487,380,897	459,309,682
Oats	173,350	255,170	10,761,952	14,451,930

\* Values are in \$1,000s

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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 Mitchell County crop inventories and sales for 1997 and 2002. State statistics are included for comparison. Table 6 provides similar information for Mitchell 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

	Mitchell County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold	154,588	162,240	12,273,634	12,162,165
Value of Livestock and Livestock Products Sold*	92,156	99,245	6,202,362	5,780,489
<b>Hogs and Pigs</b>				
Total inventory	238,770	265,253	15,486,531	14,513,319
Inventory of breeding stock	17,466	27,910	1,145,323	1,354,166
Number sold	587,440	489,735	41,232,492	27,340,921
Value of sales*	45,947	57,091	3,078,455	3,012,764
<b>Cattle and Calves</b>				
Total inventory	44,408	45,239	3,535,945	3,717,394
Beef cows	3,402	3,084	987,670	1,051,178
Milk cows	2,391	2,974	206,965	222,090
Number sold	53,634	45,001	2,929,704	2,936,978
Value of sales*	38,172	30,847	2,119,935	1,886,416
Value of Dairy Products Sold*	4,524	6,192	442,431	407,897
<b>Poultry and Poultry Products</b>				
Value of sales*	3,308	4,850	511,949	414,587
Inventory of layers 20 weeks and older	(D)	280,178	38,650,210	21,514,768
Broiler and meat-type chicken inventory	6,769	1,003	1,730,091	1,023,349
Broiler and meat-type chickens sold	112,854	(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
<b>Sheep and Goats and Related Products</b>				
Value of sales	107	(NA)	23,366	(NA)
Inventory of sheep and lambs	1,395	1,354	249,908	272,913
Number of sheep and lambs sold	1,337	1,272	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 Mitchell 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	34,637	80,297	114,934	(NA)	(NA)	(NA)
1991	26,547	81,580	108,127	-8,090	1,283	-6,807
1992	29,174	87,688	116,862	2,627	6,108	8,735
1993	9,963	94,050	104,013	-19,211	6,362	-12,849
1994	34,840	97,844	132,684	24,877	3,794	28,671
1995	30,726	101,306	132,032	-4,114	3,462	-652
1996	49,443	105,315	154,758	18,717	4,009	22,726
1997	52,495	107,327	159,822	3,052	2,012	5,064
1998	37,774	110,911	148,685	-14,721	3,584	-11,137
1999	22,703	116,693	139,396	-15,071	5,782	-9,289
2000	29,440	118,626	148,066	6,737	1,933	8,670
2001	20,747	118,971	139,718	-8,693	345	-8,348
2002	24,555	122,418	146,973	3,808	3,447	7,255
2003	12,293	128,353	140,646	-12,262	5,935	-6,327

Data from the US Bureau of Economic Analysis