

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

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This summary report provides county-level statistics for Marion 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 Marion County had 1,051 farms in 2002. These farms averaged 263 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 Marion County was \$449,997 in 2002, compared to \$808,152 for Iowa and \$604,403, nationwide. In 2002, Marion County farms marketed an average of \$65,140 worth of farm products according to the US Census of Agriculture.

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

	Marion County		Iowa		United States	
	2002	1997	2002	1997	2002	1997
Number of farms	1,051	1,059	90,655	96,705	2,128,982	2,215,876
Land in farms (acres)	276,782	296,865	31,729,490	32,313,119	938,279,056	954,752,502
Average farm size (acres)	263	280	350	334	441	431
Market value, per farm, of						
Land and buildings (\$)	399,258	392,039	707,730	559,678	537,833	416,007
Machinery and equipment (\$)	50,739	52,677	100,422	79,607	66,570	53,861
Farm products sold (\$)	65,140	69,888	135,388	125,766	94,245	90,880

Table 2 shows employment data for Marion 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 Marion 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)

	Marion County			Iowa	
	Jobs	As a percent of County total	State Category	Jobs	% of state total
Farm and closely-related	1,324	5.84	0.66	201,967	10.57
Peripherally-related	2,178	9.61	1.14	191,669	10.04
Total farm and farm-related	3,502	15.45	0.89	393,636	20.61
Total employment	22,667	100.00	1.19	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 Marion 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 Marion 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 Marion County.

Table 3 shows that, in 2002, the total output value of Marion County's agricultural production industry was \$66.066 million. \$27.514 million of this output (41.65 percent of the total output value) was the value added to the output by Marion 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). 48.87 percent of this value added, or \$13.448 million, was paid out as compensation to the 1,038 production agriculture jobs in Marion 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>Marion 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	15.078	194	4.949	8.107	0.77
Grain	23.323	452	5.515	10.562	1.00
Other Crops	10.545	74	2.633	6.981	0.66
Cattle	9.527	87	-0.006	0.685	0.07
Poultry	0.000	0	0.000	0.000	0.00
Hogs and Pigs	6.545	199	0.308	1.016	0.10
Other Ag Production	1.048	32	0.049	0.163	0.02
<b>Sum of Ag Production</b>	<b>66.066</b>	<b>1,038</b>	<b>13.448</b>	<b>27.514</b>	<b>2.61</b>
<b>Primary Food Processing</b>					
Crop	0.000	0	0.000	0.000	0.00
Dairy	0.000	0	0.000	0.000	0.00
Meat	30.897	85	3.274	3.916	0.37
<b>Sum of Primary Food Proc.</b>	<b>30.897</b>	<b>85</b>	<b>3.274</b>	<b>3.916</b>	<b>0.37</b>
<b>Other Food/Ag Processing</b>					
Animal and Pet Foods	0.000	0	0.000	0.000	0.00
Other Food Processing	7.854	47	1.686	3.363	0.32
<b>Sum of Other Ag Proc.</b>	<b>7.854</b>	<b>47</b>	<b>1.686</b>	<b>3.363</b>	<b>0.32</b>
<b>Ag Input Manufacturing</b>					
Ag Chemical and Fertilizer	0.753	3	0.135	0.325	0.03
Farm Machinery	0.000	0	0.000	0.000	0.00
<b>Sum of Ag Input Mfg.</b>	<b>0.753</b>	<b>3</b>	<b>0.135</b>	<b>0.325</b>	<b>0.03</b>
<b>Sum of All Agri-food Ind.</b>	<b>105.570</b>	<b>1,173</b>	<b>18.543</b>	<b>35.118</b>	<b>3.34</b>
<b>NonAg Industries</b>	<b>2,322.563</b>	<b>19,733</b>	<b>673.931</b>	<b>1,017.621</b>	<b>96.66</b>
<b>Totals</b>	<b>2,428.133</b>	<b>20,906</b>	<b>692.474</b>	<b>1,052.739</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 Marion County's agri-food industry output was \$105.570 million, or 4.35 percent of Marion County's total industrial production. Of this, \$35.118 million (33.27 percent) was value added within these industries in Marion County. \$18.543 million of this value added was paid out as wages and salaries to the 1,173 agri-food industry jobs in the county.

Overall, Table 3 shows that Marion County's agri-food industries directly accounted for 4.35 percent of the county's total output, 3.34 percent of total value added, 2.68 percent of labor income, and 5.61 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

Marion County	Output*	Income*	Value Added*	Value Added As a Percent of Nonhousehold	
				Total V.A.	Demand
<b>Agricultural Production</b>					
Oilseeds	19.560	6.981	10.796	1.03	1.11
Grain	27.853	8.066	13.460	1.28	1.38
Other Crops	8.777	2.919	5.673	0.54	0.58
Cattle	0.126	0.013	0.029	0.00	0.00
Poultry	0.000	0.000	0.000	0.00	0.00
Hogs and Pigs	3.278	0.453	0.921	0.09	0.09
Other Ag Production	0.525	0.073	0.147	0.01	0.02
<b>Sum of Ag Production</b>	<b>60.119</b>	<b>18.505</b>	<b>31.027</b>	<b>2.95</b>	<b>3.19</b>
<b>Primary Food Processing</b>					
Crop	0.000	0.000	0.000	0.00	0.00
Dairy	0.000	0.000	0.000	0.00	0.00
Meat	43.459	5.172	8.864	0.84	0.91
<b>Sum of Primary Food Proc.</b>	<b>43.459</b>	<b>5.172</b>	<b>8.864</b>	<b>0.84</b>	<b>0.91</b>
<b>Other Food/Ag Processing</b>					
Animal and Pet Foods	0.000	0.000	0.000	0.00	0.00
Other Food Processing	7.401	1.879	3.399	0.32	0.35
<b>Sum of Other Ag Proc.</b>	<b>7.401</b>	<b>1.879</b>	<b>3.399</b>	<b>0.32</b>	<b>0.35</b>
<b>Ag Input Manufacturing</b>					
Ag Chemical and Fertilizer	0.615	0.149	0.284	0.03	0.03
Farm Machinery	0.000	0.000	0.000	0.00	0.00
<b>Sum of Ag Input Mfg.</b>	<b>0.615</b>	<b>0.149</b>	<b>0.284</b>	<b>0.03</b>	<b>0.03</b>
<b>Sum of All Agri-food Ind.</b>	<b>111.594</b>	<b>25.705</b>	<b>43.574</b>	<b>4.14</b>	<b>4.48</b>
<b>NonAg Industries</b>	<b>2,183.301</b>	<b>594.521</b>	<b>929.903</b>	<b>88.33</b>	<b>95.52</b>
<b>Household Consumption</b>	<b>133.238</b>	<b>294.602</b>	<b>79.262</b>	<b>7.53</b>	<b>8.14</b>
<b>Totals</b>	<b>2,428.133</b>	<b>914.827</b>	<b>1,052.739</b>	<b>100.00</b>	<b>108.14</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 Marion County's agricultural production industry was \$60.119 million. \$31.027 million of this output (51.61 percent of the total output value) was the value added to the output by economic activity within Marion County (value added). The remainder came from inputs purchased from out-of-county sources. 59.64 percent of this value added, or \$18.505 million, was paid out as personal income to residents of Marion 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 Marion County's agri-food industry output was \$111.594 million, or 4.60 percent of Marion County's total industrial production. Of this, \$43.574 million (39.05 percent) was value added within these industries in Marion County. \$25.705 million of this value added was paid out as personal income.

Overall, Table 4 shows that exports from Marion County's agri-food industries accounted for 4.60 percent of the county's total output, 4.14 percent of total value added, and 2.81 percent of the county's personal income.

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

	Marion County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold*	68,462	74,012	12,273,634	12,162,165
Value of Crops Sold*	46,133	45,349	6,071,272	6,381,676
Total Cropland Harvested (acres)	168,055	174,644	23,994,343	24,008,826
Corn for grain	76,831	79,063	11,761,392	11,930,542
Corn for silage and green-chop	776	1,099	247,269	244,913
Soybeans	71,426	73,082	10,418,621	10,258,681
Oats	1,014	2,159	143,513	214,485
Harvested forage crops	20,068	(NA)	1,533,027	(NA)
Bushels harvested				
Corn	11,987,606	9,931,392	1,851,276,224	1,581,093,092
Soybeans	3,252,756	3,267,067	487,380,897	459,309,682
Oats	67,438	143,607	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 Marion County crop inventories and sales for 1997 and 2002. State statistics are included for comparison. Table 6 provides similar information for Marion 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

	Marion County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold	68,462	74,012	12,273,634	12,162,165
Value of Livestock and Livestock Products Sold*	22,329	28,663	6,202,362	5,780,489
<b>Hogs and Pigs</b>				
Total inventory	48,789	80,727	15,486,531	14,513,319
Inventory of breeding stock	5,132	9,896	1,145,323	1,354,166
Number sold	142,687	159,073	41,232,492	27,340,921
Value of sales*	11,555	16,535	3,078,455	3,012,764
<b>Cattle and Calves</b>				
Total inventory	26,605	31,131	3,535,945	3,717,394
Beef cows	11,975	13,222	987,670	1,051,178
Milk cows	644	742	206,965	222,090
Number sold	14,825	19,281	2,929,704	2,936,978
Value of sales*	9,200	9,756	2,119,935	1,886,416
Value of Dairy Products Sold*	1,079	1,518	442,431	407,897
<b>Poultry and Poultry Products</b>				
Value of sales*	(D)	6	511,949	414,587
Inventory of layers 20 weeks and older	908	806	38,650,210	21,514,768
Broiler and meat-type chicken inventory	505	(D)	1,730,091	1,023,349
Broiler and meat-type chickens sold	1,021	307	9,558,127	6,919,963
Turkey inventory	33	(D)	3,681,862	2,552,845
Turkeys sold	(D)	-	9,145,415	7,279,822
<b>Sheep and Goats and Related Products</b>				
Value of sales	314	(NA)	23,366	(NA)
Inventory of sheep and lambs	3,181	8,476	249,908	272,913
Number of sheep and lambs sold	3,760	8,712	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 Marion 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	15,269	384,423	399,692	(NA)	(NA)	(NA)
1991	11,798	393,592	405,390	-3,471	9,169	5,698
1992	14,087	421,230	435,317	2,289	27,638	29,927
1993	4,073	444,992	449,065	-10,014	23,762	13,748
1994	18,248	480,623	498,871	14,175	35,631	49,806
1995	3,206	502,821	506,027	-15,042	22,198	7,156
1996	11,528	538,533	550,061	8,322	35,712	44,034
1997	20,880	574,495	595,375	9,352	35,962	45,314
1998	8,293	624,216	632,509	-12,587	49,721	37,134
1999	5,004	689,133	694,137	-3,289	64,917	61,628
2000	6,905	748,479	755,384	1,901	59,346	61,247
2001	3,230	701,361	704,591	-3,675	-47,118	-50,793
2002	6,605	686,868	693,473	3,375	-14,493	-11,118
2003	2,034	709,368	711,402	-4,571	22,500	17,929

Data from the US Bureau of Economic Analysis