

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

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This summary report provides county-level statistics for Hancock 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 Hancock County had 827 farms in 2002. These farms averaged 390 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 Hancock County was \$867,635 in 2002, compared to \$808,152 for Iowa and \$604,403, nationwide. In 2002, Hancock County farms marketed an average of \$171,209 worth of farm products according to the US Census of Agriculture.

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

	Hancock County		Iowa		United States	
	2002	1997	2002	1997	2002	1997
Number of farms	827	895	90,655	96,705	2,128,982	2,215,876
Land in farms (acres)	322,322	347,522	31,729,490	32,313,119	938,279,056	954,752,502
Average farm size (acres)	390	388	350	334	441	431
Market value, per farm, of						
Land and buildings (\$)	756,135	806,574	707,730	559,678	537,833	416,007
Machinery and equipment (\$)	111,500	104,099	100,422	79,607	66,570	53,861
Farm products sold (\$)	171,209	160,839	135,388	125,766	94,245	90,880

Table 2 shows employment data for Hancock 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 Hancock 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)

	Hancock County			Iowa	
	Jobs	As a percent of County total	State Category	Jobs	% of state total
Farm and closely-related	1,311	12.25	0.65	201,967	10.57
Peripherally-related	386	3.60	0.20	191,669	10.04
Total farm and farm-related	1,696	15.85	0.43	393,636	20.61
Total employment	10,704	100.00	0.56	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 Hancock 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 Hancock 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 Hancock County.

Table 3 shows that, in 2002, the total output value of Hancock County's agricultural production industry was \$124.859 million. \$47.048 million of this output (37.68 percent of the total output value) was the value added to the output by Hancock 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). 55.25 percent of this value added, or \$25.996 million, was paid out as compensation to the 1,167 production agriculture jobs in Hancock County.

<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>Hancock 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	30.235	193	9.975	16.256	4.71
Grain	49.830	478	12.123	22.566	6.54
Other Crops	1.686	5	0.436	1.002	0.29
Cattle	6.997	31	0.105	0.489	0.14
Poultry	6.421	8	0.880	2.096	0.61
Hogs and Pigs	25.147	379	2.061	3.905	1.13
Other Ag Production	4.543	73	0.416	0.734	0.21
<b>Sum of Ag Production</b>	<b>124.859</b>	<b>1,167</b>	<b>25.996</b>	<b>47.048</b>	<b>13.64</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	79.230	216	8.792	10.512	3.05
<b>Sum of Primary Food Proc.</b>	<b>79.230</b>	<b>216</b>	<b>8.792</b>	<b>10.512</b>	<b>3.05</b>
<b>Other Food/Ag Processing</b>					
Animal and Pet Foods	6.795	12	0.678	1.016	0.29
Other Food Processing	0.000	0	0.000	0.000	0.00
<b>Sum of Other Ag Proc.</b>	<b>6.795</b>	<b>12</b>	<b>0.678</b>	<b>1.016</b>	<b>0.29</b>
<b>Ag Input Manufacturing</b>					
Ag Chemical and Fertilizer	0.000	0	0.000	0.000	0.00
Farm Machinery	10.264	96	-5.905	-3.251	-0.94
<b>Sum of Ag Input Mfg.</b>	<b>10.264</b>	<b>96</b>	<b>-5.905</b>	<b>-3.251</b>	<b>-0.94</b>
<b>Sum of All Agri-food Ind.</b>	<b>221.148</b>	<b>1,491</b>	<b>29.561</b>	<b>55.325</b>	<b>16.04</b>
<b>NonAg Industries</b>	<b>804.236</b>	<b>5,910</b>	<b>193.746</b>	<b>289.628</b>	<b>83.96</b>
<b>Totals</b>	<b>1,025.384</b>	<b>7,401</b>	<b>223.307</b>	<b>344.953</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 Hancock County's agri-food industry output was \$221.148 million, or 21.57 percent of Hancock County's total industrial production. Of this, \$55.325 million (25.02 percent) was value added within these industries in Hancock County. \$29.561 million of this value added was paid out as wages and salaries to the 1,491 agri-food industry jobs in the county.

Overall, Table 3 shows that Hancock County's agri-food industries directly accounted for 21.57 percent of the county's total output, 16.04 percent of total value added, 13.24 percent of labor income, and 20.15 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

Hancock County	Value Added				
	As a Percent of				
	Nonhousehold				
Agricultural Production	Output*	Income*	Value Added*	Total V.A.	Demand
Oilseeds	37.815	13.909	20.974	6.08	6.56
Grain	57.391	17.294	27.735	8.04	8.67
Other Crops	0.562	0.191	0.336	0.10	0.10
Cattle	0.025	0.002	0.005	0.00	0.00
Poultry	7.601	1.631	2.826	0.82	0.88
Hogs and Pigs	19.129	2.603	4.682	1.36	1.46
Other Ag Production	3.405	0.463	0.833	0.24	0.26
<b>Sum of Ag Production</b>	<b>125.929</b>	<b>36.093</b>	<b>57.390</b>	<b>16.64</b>	<b>17.95</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	107.470	12.894	20.139	5.84	6.30
<b>Sum of Primary Food Proc.</b>	<b>107.470</b>	<b>12.894</b>	<b>20.139</b>	<b>5.84</b>	<b>6.30</b>
<b>Other Food/Ag Processing</b>					
Animal and Pet Foods	8.712	1.212	1.949	0.57	0.61
Other Food Processing	0.000	0.000	0.000	0.00	0.00
<b>Sum of Other Ag Proc.</b>	<b>8.712</b>	<b>1.212</b>	<b>1.949</b>	<b>0.57</b>	<b>0.61</b>
<b>Ag Input Manufacturing</b>					
Ag Chemical and Fertilizer	0.000	0.000	0.000	0.00	0.00
Farm Machinery	10.300	-5.074	-3.015	-0.87	-0.94
<b>Sum of Ag Input Mfg.</b>	<b>10.300</b>	<b>-5.074</b>	<b>-3.015</b>	<b>-0.87</b>	<b>-0.94</b>
<b>Sum of All Agri-food Ind.</b>	<b>252.411</b>	<b>45.125</b>	<b>76.463</b>	<b>22.17</b>	<b>23.91</b>
<b>NonAg Industries</b>	<b>733.317</b>	<b>166.302</b>	<b>243.293</b>	<b>70.53</b>	<b>76.09</b>
<b>Household Consumption</b>	<b>39.656</b>	<b>128.280</b>	<b>25.198</b>	<b>7.30</b>	<b>7.88</b>
<b>Totals</b>	<b>1,025.384</b>	<b>339.706</b>	<b>344.953</b>	<b>100.00</b>	<b>107.88</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 Hancock County's agricultural production industry was \$125.929 million. \$57.390 million of this output (45.57 percent of the total output value) was the value added to the output by economic activity within Hancock County (value added). The remainder came from inputs purchased from out-of-county sources. 62.89 percent of this value added, or \$36.093 million, was paid out as personal income to residents of Hancock 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 Hancock County's agri-food industry output was \$252.411 million, or 24.62 percent of Hancock County's total industrial production. Of this, \$76.463 million (30.29 percent) was value added within these industries in Hancock County. \$45.125 million of this value added was paid out as personal income.

Overall, Table 4 shows that exports from Hancock County's agri-food industries accounted for 24.62 percent of the county's total output, 22.17 percent of total value added, and 13.28 percent of the county's personal income.

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

	Hancock County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold*	141,590	143,951	12,273,634	12,162,165
Value of Crops Sold*	80,160	89,380	6,071,272	6,381,676
Total Cropland Harvested (acres)	298,798	315,757	23,994,343	24,008,826
Corn for grain	156,396	170,272	11,761,392	11,930,542
Corn for silage and green-chop	932	1,185	247,269	244,913
Soybeans	137,638	141,665	10,418,621	10,258,681
Oats	575	891	143,513	214,485
Harvested forage crops	3,724	(NA)	1,533,027	(NA)
Bushels harvested				
Corn	25,580,319	23,550,760	1,851,276,224	1,581,093,092
Soybeans	6,522,357	5,869,302	487,380,897	459,309,682
Oats	50,143	62,011	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 Hancock County crop inventories and sales for 1997 and 2002. State statistics are included for comparison. Table 6 provides similar information for Hancock 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

	Hancock County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold	141,590	143,951	12,273,634	12,162,165
Value of Livestock and Livestock Products Sold*	61,429	54,570	6,202,362	5,780,489
<b>Hogs and Pigs</b>				
Total inventory	200,651	175,177	15,486,531	14,513,319
Inventory of breeding stock	11,693	13,965	1,145,323	1,354,166
Number sold	592,582	321,287	41,232,492	27,340,921
Value of sales*	(D)	36,390	3,078,455	3,012,764
<b>Cattle and Calves</b>				
Total inventory	9,669	11,784	3,535,945	3,717,394
Beef cows	2,331	2,807	987,670	1,051,178
Milk cows	296	355	206,965	222,090
Number sold	8,819	10,925	2,929,704	2,936,978
Value of sales*	6,757	7,611	2,119,935	1,886,416
Value of Dairy Products Sold*	740	595	442,431	407,897
<b>Poultry and Poultry Products</b>				
Value of sales*	(D)	(D)	511,949	414,587
Inventory of layers 20 weeks and older	(D)	(D)	38,650,210	21,514,768
Broiler and meat-type chicken inventory	(D)	460	1,730,091	1,023,349
Broiler and meat-type chickens sold	1,050	(D)	9,558,127	6,919,963
Turkey inventory	21	55	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	162	(NA)	23,366	(NA)
Inventory of sheep and lambs	2,339	2,275	249,908	272,913
Number of sheep and lambs sold	1,740	2,270	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 Hancock 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	24,797	148,336	173,133	(NA)	(NA)	(NA)
1991	9,916	146,951	156,867	-14,881	-1,385	-16,266
1992	26,383	158,152	184,535	16,467	11,201	27,668
1993	-1,772	174,911	173,139	-28,155	16,759	-11,396
1994	28,672	190,342	219,014	30,444	15,431	45,875
1995	20,844	189,527	210,371	-7,828	-815	-8,643
1996	45,389	197,190	242,579	24,545	7,663	32,208
1997	44,278	199,294	243,572	-1,111	2,104	993
1998	28,162	232,286	260,448	-16,116	32,992	16,876
1999	13,512	265,916	279,428	-14,650	33,630	18,980
2000	23,554	265,377	288,931	10,042	-539	9,503
2001	13,120	267,853	280,973	-10,434	2,476	-7,958
2002	18,502	312,891	331,393	5,382	45,038	50,420
2003	17,044	343,338	360,382	-1,458	30,447	28,989

Data from the US Bureau of Economic Analysis