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

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This summary report provides county-level statistics for Dallas 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 Dallas County had 938 farms in 2002. These farms averaged 330 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 Dallas County was $957,857 in 2002, compared to $808,152 for Iowa and $604,403, nationwide. In 2002, Dallas County farms marketed an average of $98,610 worth of farm products according to the US Census of Agriculture.

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

	Dallas County		Iowa		United States	
	2002	1997	2002	1997	2002	1997
Number of farms	938	1,002	90,655	96,705	2,128,982	2,215,876
Land in farms (acres)	309,157	337,424	31,729,490	32,313,119	938,279,056	954,752,502
Average farm size (acres)	330	337	350	334	441	431
Market value, per farm, of						
Land and buildings ($)	874,630	806,554	707,730	559,678	537,833	416,007
Machinery and equipment ($)	83,227	83,198	100,422	79,607	66,570	53,861
Farm products sold ($)	98,610	121,126	135,388	125,766	94,245	90,880

Table 2 shows employment data for Dallas 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[2]. 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 Dallas County. Detail is restricted in this summary, due to the smaller employment base and privacy issues at the county level.

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[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)

	Dallas County			Iowa	
		As a percent of			
	Jobs	County total	State Category	Jobs	% of state total
Farm and closely-related	2,194	11.55	1.09	201,967	10.57
Peripherally-related	1,115	5.87	0.58	191,669	10.04
Total farm and farm-related	3,310	17.42	0.84	393,636	20.61
Total employment	19,001	100.00	0.99	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 Dallas 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 Dallas 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[4] and labor income (compensation for employees and proprietors) within the agri-food industries in Dallas County.

Table 3 shows that, in 2002, the total output value of Dallas County's agricultural production industry was $114.733 million. $46.319 million of this output (40.37 percent of the total output value) was the value added to the output by Dallas 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). 73.34 percent of this value added, or $33.973 million, was paid out as compensation to the 1,990 production agriculture jobs in Dallas 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

Dallas County Agricultural Production	**Output***	**Jobs**	**Labor Income***	**Value-Added Value***	**Pct. Of Tot.**
Oilseeds	23.315	278	7.848	12.535	1.46
Grain	35.889	644	9.730	16.253	1.89
Other Crops	6.359	42	3.231	4.296	0.50
Cattle	11.527	97	0.919	0.723	0.08
Poultry	2.947	7	0.641	0.962	0.11
Hogs and Pigs	*6.605*	*186*	*1.483*	*1.026*	0.12
Other Ag Production	28.091	736	10.121	10.524	1.22
Sum of Ag Production	**114.733**	**1,990**	**33.973**	**46.319**	**5.39**
Primary Food Processing					
Crop	0.000	0	0.000	0.000	0.00
Dairy	0.000	0	0.000	0.000	0.00
Meat	459.873	1,276	45.699	54.851	6.38
Sum of Primary Food Proc.	**459.873**	**1,276**	**45.699**	**54.851**	**6.38**
Other Food/Ag Processing					
Animal and Pet Foods	3.085	6	0.346	0.491	0.06
Other Food Processing	2.068	13	0.385	0.896	0.10
Sum of Other Ag Proc.	**5.153**	**19**	**0.731**	**1.387**	**0.16**
Ag Input Manufacturing					
Ag Chemical and Fertilizer	0.000	0	0.000	0.000	0.00
Farm Machinery	13.238	105	-5.578	-1.942	-0.23
Sum of Ag Input Mfg.	**13.238**	**105**	**-5.578**	**-1.942**	**-0.23**
Sum of All Agri-food Ind.	**592.997**	**3,390**	**74.825**	**100.615**	**11.71**
NonAg Industries	**1,256.800**	**14,424**	**466.792**	**758.589**	**88.29**
Totals	**1,849.797**	**17,814**	**541.617**	**859.204**	**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 Dallas County's agri-food industry output was $592.997 million, or 32.06 percent of Dallas County's total industrial production. Of this, $100.615 million (16.97 percent) was value added within these industries in Dallas County. $74.825 million of this value added was paid out as wages and salaries to the 3,390 agri-food industry jobs in the county.

Overall, Table 3 shows that Dallas County's agri-food industries directly accounted for 32.06 percent of the county's total output, 11.71 percent of total value added, 13.82 percent of labor income, and 19.03 percent of the county's jobs[5].

[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

Dallas County			Value Added		
				As a Percent of	
					Nonhousehold
Agricultural Production	**Output***	**Income***	**Value Added***	**Total V.A.**	**Demand**
Oilseeds	33.632	13.334	19.120	2.23	3.03
Grain	49.883	17.247	25.063	2.92	3.97
Other Crops	5.251	2.557	3.459	0.40	0.55
Cattle	0.123	0.022	0.031	0.00	0.00
Poultry	3.256	0.921	1.289	0.15	0.20
Hogs and Pigs	*0.573*	*0.136*	*0.174*	0.02	0.03
Other Ag Production	27.407	9.637	11.785	1.37	1.87
Sum of Ag Production	**120.125**	**43.853**	**60.923**	**7.09**	**9.66**
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	543.846	74.607	104.057	12.11	16.49
Sum of Primary Food Proc.	**543.846**	**74.607**	**104.057**	**12.11**	**16.49**
Other Food/Ag Processing					
Animal and Pet Foods	4.401	0.834	1.212	0.14	0.19
Other Food Processing	2.416	0.731	1.165	0.14	0.18
Sum of Other Ag Proc.	**6.817**	**1.565**	**2.377**	**0.28**	**0.38**
Ag Input Manufacturing					
Ag Chemical and Fertilizer	0.000	0.000	0.000	0.00	0.00
Farm Machinery	14.632	-3.405	-0.762	-0.09	-0.12
Sum of Ag Input Mfg.	**14.632**	**-3.405**	**-0.762**	**-0.09**	**-0.12**
Sum of All Agri-food Ind.	**685.420**	**116.621**	**166.595**	**19.39**	**26.41**
NonAg Industries	**815.635**	**341.876**	**464.267**	**54.03**	**73.59**
Household Consumption	**348.742**	**909.077**	**228.342**	**26.58**	**36.20**
Totals	**1,849.797**	**1,367.573**	**859.204**	**100.00**	**136.20**

* 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[6]. 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[7].

[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 Dallas County's agricultural production industry was $120.125 million. $60.923 million of this output (50.72 percent of the total output value) was the value added to the output by economic activity within Dallas County (value added). The remainder came from inputs purchased from out-of-county sources. 71.98 percent of this value added, or $43.853 million, was paid out as personal income to residents of Dallas 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 Dallas County's agri-food industry output was $685.420 million, or 37.05 percent of Dallas County's total industrial production. Of this, $166.595 million (24.31 percent) was value added within these industries in Dallas County. $116.621 million of this value added was paid out as personal income.

Overall, Table 4 shows that exports from Dallas County's agri-food industries accounted for 37.05 percent of the county's total output, 19.39 percent of total value added, and 8.53 percent of the county's personal income.

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

	Dallas County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold*	92,497	121,368	12,273,634	12,162,165
Value of Crops Sold*	64,628	80,404	6,071,272	6,381,676
Total Cropland Harvested (acres)	252,414	274,553	23,994,343	24,008,826
Corn for grain	123,219	131,532	11,761,392	11,930,542
Corn for silage and green-chop	1,263	859	247,269	244,913
Soybeans	117,746	131,381	10,418,621	10,258,681
Oats	224	953	143,513	214,485
Harvested forage crops	8,461	(NA)	1,533,027	(NA)
Bushels harvested				
Corn	18,245,964	17,632,128	1,851,276,224	1,581,093,092
Soybeans	5,029,656	5,509,083	487,380,897	459,309,682
Oats	15,482	70,061	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 Dallas County crop inventories and sales for 1997 and 2002. State statistics are included for comparison. Table 6 provides similar information for Dallas 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

	Dallas County		Iowa	
	2002	1997	2002	1997
Value of All Farm Products Sold	92,497	121,368	12,273,634	12,162,165
Value of Livestock and Livestock Products Sold*	27,869	40,965	6,202,362	5,780,489
Hogs and Pigs				
Total inventory	45,755	57,043	15,486,531	14,513,319
Inventory of breeding stock	1,126	3,860	1,145,323	1,354,166
Number sold	119,434	96,957	41,232,492	27,340,921
Value of sales*	11,041	11,655	3,078,455	3,012,764
Cattle and Calves				
Total inventory	16,164	17,142	3,535,945	3,717,394
Beef cows	(D)	6,588	987,670	1,051,178
Milk cows	(D)	98	206,965	222,090
Number sold	16,365	19,230	2,929,704	2,936,978
Value of sales*	11,131	12,184	2,119,935	1,886,416
Value of Dairy Products Sold*	201	(D)	442,431	407,897
Poultry and Poultry Products				
Value of sales*	5,119	(D)	511,949	414,587
Inventory of layers 20 weeks and older	287,668	213,294	38,650,210	21,514,768
Broiler and meat-type chicken inventory	1,229	360	1,730,091	1,023,349
Broiler and meat-type chickens sold	1,440	1,421	9,558,127	6,919,963
Turkey inventory	11	(D)	3,681,862	2,552,845
Turkeys sold	-	-	9,145,415	7,279,822
Sheep and Goats and Related Products				
Value of sales	151	(NA)	23,366	(NA)
Inventory of sheep and lambs	1,277	1,227	249,908	272,913
Number of sheep and lambs sold	1,782	975	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 Dallas 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	17,964	195,438	213,402	(NA)	(NA)	(NA)
1991	16,561	205,878	222,439	-1,403	10,440	9,037
1992	23,596	230,722	254,318	7,035	24,844	31,879
1993	11,923	250,919	262,842	-11,673	20,197	8,524
1994	29,853	284,796	314,649	17,930	33,877	51,807
1995	27,804	326,075	353,879	-2,049	41,279	39,230
1996	53,820	356,855	410,675	26,016	30,780	56,796
1997	42,997	394,446	437,443	-10,823	37,591	26,768
1998	35,598	431,920	467,518	-7,399	37,474	30,075
1999	21,396	464,997	486,393	-14,202	33,077	18,875
2000	18,858	490,477	509,335	-2,538	25,480	22,942
2001	15,193	483,236	498,429	-3,665	-7,241	-10,906
2002	20,382	514,490	534,872	5,189	31,254	36,443
2003	19,614	570,425	590,039	-768	55,935	55,167

Data from the US Bureau of Economic Analysis