Agricultural Impact Data Report to Development & Planning Committee August 2009

For many years, we have believed that agriculture is the number one economic driver, the largest industry, within Jo Daviess County. While the tourism industry may be “nipping at the heels” of agriculture, this report provides some detailed information that not only supports the “ag as king” hypothesis, but further, exhibits the ways in which agriculture – farming and all of its associated businesses – translates into jobs, sales, and revenues.

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NOTES

In order to fully understand the effects of farming and agriculture on our local economy, it's helpful to have a picture of what agriculture looks like in the county. This report will look at general agricultural demographics focusing on three major areas and the notable changes over the years: Traditional Agriculture will look at those types of farms and farm products that most think of when they think about farming – livestock production including dairy, cattle and calves, and swine; grain production including alfalfa and hay, corn, soybeans, and oats. Secondly, Non-Traditional Agriculture will review new and emerging crops and agricultural products including vineyards and wineries, organic production for market, organic and natural production for local or regional sales. And finally, Value-Added Agriculture, which is defined as those industries that process, package, ship and otherwise support the farmers and growers, including fertilizer production, shipping, sales and application, ethanol and other biofuels production, grain storage, seed sales, trucking and rail, food and grain processing.

Data has been collected from various sources, including the Illinois Farm Bureau and the Jo Daviess Farm Bureau office, the USDA, and the NIU Center for Governmental Studies and has been cited throughout (see final page for complete listing).

Data and Multipliers

According to the USDA, a farm is "any place from which $1,000 or more of agricultural products were, or normally would be, produced and sold during the Census year." For Jo Daviess County, that covers a lot of ground – from dairy, beef and hogs, to soybeans, corn and alfalfa to grapes, organic veggies and goats milk, we have it all in Jo Daviess County. While the numbers that show incomes and outputs are not always available, we can safely assume that many of the farms in the county provide some economic impact; the traditional grain and livestock farms lead the pack with many, many millions of dollars pumped annually into the county's economy in both direct and indirect effects.

What is a Multiplier?

An economic multiplier is defined as a measure of the larger effect that a certain economic activity has on a regional economy. As an important statistic concerning an industry's economic impact, the multiplier indicates how much extra-industry economic activity is generated by the industry under study. Such activity comprises two key effects: indirect effects and induced effects. Indirect effects are the ancillary purchases of goods and services, such as inputs. Induced effects are the additional purchases and economic activity contributed by employees of the industry. The livestock's multiplier effect, for instance, is the non-livestock economic activity created by one unit of livestock activity. The state's livestock industry has an output multiplier of 1.64, meaning that for each dollar of output created, 64 cents of additional economic activity is created outside the industry.

Multipliers for livestock used in this document were recommended by the Illinois Farm Bureau's Economist, Mike Doherty, as valid and accurate for Jo Daviess County. The numbers were utilized in a report by the University of Illinois.[1]

- Dairy multiplier: 1.64
- Beef multiplier: 1.25
- Hogs multiplier: 1.92

In other words, you could multiply total sales from all dairy farms by 1.64 to arrive at the total sales generated by both the direct sales off the farms plus other sales generated within related businesses.

Often of interest is the question of new investments and how they might impact the rest of the economy. In the Goldsmith report, for instance, a "400-cow dairy would have a total economic impact of about $1.8M on $1.2M worth of milk sales. Its output multiplier is a little lower at 1.62 However, in comparison to the hog sector, a larger portion of the indirect effect is internal to the industry—11 percent for dairy as against 8 percent for the farrow operation. This is

[1] The Economic Impact of Illinois' Livestock Industry, Dr. Peter Goldsmith and Durga Saripally

most likely due to the assumption that the farrow-to-finish raises all of its replacements. However, the induced effect is about the same in both cases, implying similar labor wage and staffing levels. The industries that benefit the most due to spillover are real estate, wholesale trade, petroleum refineries and veterinary services. A total of 15 full time labor equivalents would be directly involved in the operation."[2]

Certainly, the question of economic impact of a large dairy is relevant and timely. Using the numbers suggested, a single dairy cow generates more than $15,000 to $17,000 per year in economic activity; a 3,000 head dairy operation could produce in the neighborhood of $9 million in sales; utilizing the multiplier of 1.64, an additional $14.6 million in additional economic activity is realized.

According to the USDA's most recent (2007) agricultural census[3], farm production expenses totaled over $90 million dollars, or an average per farm of $102,350. While not all of these costs are expended within the county, a high percentage of local farmers' costs are the purchase of local goods and services, such as feeds, seed, equipment, transportation, utilities and labor. Payroll for the county's farm employees totaled $6,514,000.00 in 2007. Using a multiplier of 1.66, that represents a total of $10,422,400. circulating in the county. Farm employees, then, add more than $3.9 million in additional spending in the county, in "induced effects", defined as additional purchases and economic activity contributed by employees.

[2] ibid
[3] USDA National Agricultural Statistics Service (NASS), 2007

Land and Farms

Farm EAV amounts to the second highest level, following residential and ahead of commercial and industrial, and the percentage of total EAV has remained steady at 28%, more than double commercial EAV and nearly 15 x the industrial EAV.[4]

	TOTAL EAV (1,000'S)	RESDL	AG	COMMERCIAL	INDUSTRIAL
2004:	557,855	322,739 (58%)	155,479 (28%)	67,288 (12%)	12,349 (2%)
2005:	595,879	348,785 (59%)	164,792 (28%)	69,899 (12%)	12,403 (2%)
2006:	656,948	387,435 (59%)	183,288 (28%)	73,591 (11%)	12,634 (2%)
Tax Rate:	**2006:**	**$5.93**	**$6.12**	**$6.80**	**$6.71**

The majority of all land in the county is agricultural land, though the percentage slipped by over 7% in five years from 97-02:[5]

Year	Acres	% of Total Land
1997:	293,906	73.8%
2002:	264,493	66.4%

Total Acres in CRP	# Contracts
24,046	1,098

Likewise, the number of farms in the county has fallen over the twenty-five year period from 1982-2007. The period from 2002 to 2007 shows an increase in number of farms and of their average size of around 3%.

1982	**1,142**
1987	1,070 (lost 72)
1992	955 (lost 115)
1997	941 (lost 14)
2002	989 (gained 48)
2007	1,016 (gained 27)
Net Loss:	**126 farms**

Farms Total	**2007**	**2002**
Farms Total	1,016	989
Land in Farms (acres)	281,457	264,493
Average Size of Farms (acres)	277	267
Median Size of Farms (acres)	101	145

[4] NIU Market Facts, 2007
[5] ibid

Farm Sizes

Information from the USDA 2008 Ag Census tells us that "new farms tend to be smaller and have younger operators who also work off the farm. In the nation, "operators of new farms were more likely to be engaged in occupations other than farming and to derive income from non-farm sources". Since the 2002 Census of Agriculture, 291,329 farms have begun operation. In Jo Daviess County that number is 27 new farms started. On average, new farm start-ups in the U.S. tended to be smaller, with 201 acres of land and averaging $71,000 in sales. The average for all farms in the U.S. is 418 acres with annual sales of $135,000. The new farmer also tends to be younger (average age of 48)

	All Farms	New Farms
Percent of Total	100%	13%
Average Size (acres)	418	201
Average Value of Products Sold	$135,000.	$71,000.
Sales and Government Payments (<$10,000)	58%	73%
Average Age of Operator	57	48
Farming as Primary Occupation	45%	33%

Farm sizes have changed in the past five years as well. Very small farms more than doubled in number, the largest farms increased 13%, while average to larger farms saw a reduction in number ranging from 4 to 11%[6]

Farms by Size	2007	2002
1 to 9 acres	85 (+200%)	30
10 to 49 acres	261 (+23%)	211
50 to 179 acres	305 (–11%)	341
180 to 499 acres	242 (–12%)	273
500 to 999 acres	62 (-4%)	88
1,000 acres or more	61(+13)	47

Farms by Value of Sales	2007	2002
Less than $2,500	438	398
$2,500 to $4,999	37	55
$5,000 to $9,999	68	63
$10,000 to $24,999	89	95
$25,000 to $49,999	80	88
$50,000 to $99,999	95	101
$100,000 or more	209	189

[6] USDA NASS, 2007

Income and Expenses

Overall average farm net cash incomes have tripled in the county; those reporting net gains more than double; those farms reporting net losses decreasing by nearly a third. Number of farm operators with a net increase rose 25% while number of operators seeing a net loss decreased by 28%.

Net Cash Farm Income	2007	2002
Operations	$45,425,000.	$12,242,000.
Average per farm	$44,710.	$12,366.
Farms with Net Gains	653	520
Average per farm	$76,860.	$31,865.
Farms with Net Losses	363	470
Average per farm	$13,125.	$9,208.
Operators	39,444.	12,704.
Operators reporting net gain	651	$521
Average per farm	$67,920	$32,363
Operators reporting net loss	385	489
Average per farm	$13,073.	$8,864.

Farm production expenses also rose during the five-year period, an average per farm by 60%, nearly doubling expenses in 2002 from $63,870 to $102,350. in 2007.

Farm Production Expenses	2007	2002
Total Expenses	$103,987,000.	$63,231,000.
Average per farm	$102,350.	$63,870.
Various Expenses:*		
Fertilizer, lime, soil conditioners	$11,453,000.	$4,580,000
Chemicals	$6,888,000.	$3,576,000.
Seeds, plants, vines, trees	$6,909,000.	$3,139,000.
Livestock, poultry purchased/leased	$15,586,000.	$8,228,000.
Feed purchased	$10,441,000.	$7,278,000.
Gasoline, fuels & oils	$6,297,000.	$2,493,000.
Utilities	$1,758,000.	$1,597,000.
Supplies, repairs & maintenance	$7,762,000.	$6,128,000.
Hired farm labor	$6,514,000.	$2,691,000.
Contract labor	$370,000.	$106,000.
Custom work & custom hauling	$1,722,000.	$993,000.
Cash rent for land, bldgs., & grazing	$11,250,000.	$7,051,000.
Rent/lease eqpmnt, machinery, vehicles	$628,000.	$614,000.
Property taxes paid	$3,669,000.	$3,738,000.
* expenses not shown here include interest, depreciation, etc.		

Employment

In 2007 agriculture led all other industries in concentration of employment as it has for the last twenty-seven years. In terms of actual employment: (Total jobs: 1121 in 2007; 1231 in 2000; 1409 in 1990 - 8.06 index of concentration) the rate has steadily lowered over the years from 1990 to 2007, though arguably the wages have gone up as have other expenses related to farming. As a percentage, farming and ag-related services still account for over 8% of all employment in the county in 2007)[7]

For comparison: Stephenson county: 2007:,5.2% or 1,428 jobs; 2000, 5.4% or 1574 jobs; 1990: 6.7% or 1858 jobs (5.3 index of concentration); Carroll county: 2007: 11.7 % or 926 jobs; 2000: 12.1% or 1019 jobs; 1990: 12.9% or 985 jobs (11.35 index of concentration

Farming:	Jo Daviess	Illinois
1990	12.3%	0.6%
2000	9.1%	0.5%
2007	7.9%	0.4%
Ag Services/Forestry/Fishing		
1990	1.5%	0.6%
2000	2.2%	0.8%
2007	1.7%	0.6%

The use of outside farm labor has also increased in the last five years, with total payroll increasing by nearly 2.5 times.

Hired Farm Labor in County	2007	2002
# Farms	**214**	**204**
# Employees	**731**	**470**
Total Payroll	**$6,514,000.**	**$2,691,000.**

[7] NIU Market Facts, 2007

Traditional Agriculture

In the State of Illinois, Jo Daviess County is #1 in production of alfalfa, #1 in number of all cattle (1 of only 4 counties with more than 40,000 head) #2 in production of oats and in # of beef cattle (1 of only 6 counties with more than 10,000 head); #3 in # of acres in CRP program, and #3 in the state of # of milk cows[8] and in #4 in the production of grapes[9] (11 vineyards out of a total of 127 in 17 counties; 2 wineries noted, one additional (Hanover) since this IGGVA 2006 report).

Livestock	2007		2002	
	Farms	Number	Farms	Number
Cattle and calves	447	57,276	448	57,254
Beef cows	365	18,874	336	16,471
Milk cows	76	6,680	108	7,771
Hogs and Pigs	36	18,860	55	18,983
	Value	Number	Value	Number
Hogs & Pigs Sold	6,395,000.	50,859	3,451,000.	38,418
	Farms	Number	Farms	Number
Poultry*	52	1273	38	510
Sheep & Lambs	26	796	40	1198
Horses & Ponies	117	778	17	77
*** not all poultry types are counted in this USDA table**				

Total Market Value of Agricultural Products Sold[10]:

Year	Acres	Market Value
1997	275,750	75,002,000.00
2002	264,493	70,163,000.00
2007	281,457	136,651,000.00

Major crop production[11]:

Corn	Production (bushels)	Yield (bushels/acre)
2002	9,942,678	144
2005	12,919.500	165
2007	18,175,224	177
Soybeans		
2002	1,765,331	47
2005	2,162,400	53
2007	2,041,782	52

Based on multipliers utilized by Western Illinois University, the county's total crop value of $75,066,000.00 (1.314 output multiplier) translates into $98,367,724.00 total economic activity. The labor multiplier for this figure totals $87,076,560.00, the labor income multiplier (the figure that indicates how income from farm labor re-generates in the county) totals $184,662,360.00

[8] Illinois Farm Bureau and Illinois Agricultural Statistics, 2007
[9] Illinois Grape Growers & Vintners Association, 2006
[10] USDA NASS, 2007
[11] USDA NASS, 2007

Non-Traditional Agriculture

As has the nation, Jo Daviess County has experienced growth in "non-traditional" agricultural endeavors. The movement towards production of organic foods, be it vegetables and fruit, or meats and dairy has created a new wave of agricultural entrepreneurs; "small farmers" dedicated to high quality, all-natural or organic foods, marketed and sold within a small geographic range has increased both the number of farms in the county, as well as the diversity of products to be found. Because of the tourism culture prevalent throughout the county, and the heightened awareness of wellness and its relationship to foods we eat, demand has been created and supply provided, of unique products – specialty greens, garlic varieties, heirloom vegetables, goat milk and cheeses. The following table illustrates the change from 2002 to 2007, in small farms and new products.

Selected Non-Traditional Products	2007		2002	
	Farms	Number	Farms	Number
Horses & Ponies	117	778	17	77
Goats	15	220	7	
Colonies of Bees	7	45	7	60
Honey	4	(D)	2	(D)
Land Used for Vegetables*	Farms	Acres	Farms	Acres
	15	105	10	(D)
* Actually, a decrease in farms from 1997 (11) to 2002 (10) increasing again in 2007 (15); and acreage, 1997 (103); 2002 (??), 2007 (105)				

In addition, the discovery and cultivation of grape varietals that thrive in our sometimes harsh Midwestern climate, has spawned a newfound interest in and appreciation for Illinois wines. These vineyards and wineries produce agricultural dollars and simultaneously attract tourism dollars to the area through their tours and tastings. According to an IGGVA report[12], a total of $253.8 million is generated by 127 vineyards and 48 wineries statewide. Jo Daviess County ranks among the top five in number of vineyards. With 11 vineyards, Jo Daviess County is fourth out of the 17 Illinois counties with vineyards, surpassed only by Jackson, Union and Johnson counties, all located in the far southern part of the state. In 2007, there were 2 wineries in the county; an additional winery has opened in Hanover since a statewide report was conducted.[13] Using the IGGVA's figures, Jo Daviess County's 11 vineyards and 2 wineries potentially generate over $15 million annually in sales and economic activity.

Over the past five years, production of both grapes and wine has increased significantly at these county locations, benefiting from better varietals, increased appreciation, enhanced marketing by the vineyards as well as the Illinois Tourism Board, and organized events such as the "Wine-Lover's Weekend" and the Illinois Winery Tours.

[12] Economic Impact of Wine and Winegrapes in Illinois, 2005
[13] Illinois Grape and Wine Industry Survey, 2007

The numbers of farms, acreage and types of vegetables grown differ insignificantly over the years from 2002-2007, though in almost every example, there are slight decreases from 1997 to 2002, and increases from 2002 to 2007 that exceed the 1997 levels. This would mirror the nation's renewed interest over that time period in sustainable farming, organics and local foods. Jo Daviess County is not a leader in the state of Illinois in production of organic and natural vegetable products, nor do they lead in other non-traditional agricultural production. The simple fact is that all of these are on an upward trend, and the indicators are that this trend will continue.

The Jo Daviess County Farm Bureau lists twenty-three producers of wide-ranging items from grapes, to Christmas trees, to organic vegetables. In addition, there are at least six farmer's markets held throughout the summer in all parts of the county.

Value-Added Agriculture

Agricultural production would not be possible if it were not supported by a wide variety of sales and services, including trucking and distribution, fertilizer products, seed production and sales, grain harvesting, drying and storage, equipment sales and repairs, and other market-based activities, such as cheese production and distribution. This chart shows a sampling of those expenses realized by farms throughout the county and further serve as a visual reminder of the business and industry that supports the farmer.

Farm Production Expenses	2007	2002
Total Expenses	103,987,000.	$63,231,000.
Average per farm	$102,350.	$63,870.
Various Expenses: (not including interest, depreciation, etc.)		
Fertilizer, lime, soil conditioners	$11,453,000.	$4,580,000
Chemicals	$6,888,000.	$3,576,000.
Seeds, plants, vines, trees	$6,909,000.	$3,139,000.
Livestock, poultry purchased/leased	$15,586,000.	$8,228,000.
Feed purchased	$10,441,000.	$7,278,000.
Gasoline, fuels & oils	$6,297,000.	$2,493,000.
Utilities	$1,758,000.	$1,597,000.
Supplies, repairs & maintenance	$7,762,000.	^6,128,000.
Contract labor	$370,000.	$106,000.
Custom work & custom hauling	$1,722,000.	$993,000.
Rent/lease eqpmnt, machinery, vehicles	$628,000.	$614,000.

In addition, production plants such as Stockton Cheese and Primera Foods add to the overall activity of the ag industry by turning local and regional raw product into value-added products shipped and sold for consumption elsewhere. M & W Feed Service and M & W Seed provide much needed agricultural products for the variety of farm types throughout the county, while Consolidated Grain & Barge moves product via rail and barge to a hungry nation and world. Also consider veterinarians who tend to the animals, large and small, of which there are four in the county. Manufacturers like Rentech Energy Midwest who, while employing 120 people or more, sells over 600,000 tons of nitrogen products including anhydrous ammonia, liquid and granular urea, nitrogen solutions (urea ammonium nitrate solution or UAN) to local and regional farmers. Most of their products are sold to growers and other customers within a 150 mile radius of the county.

CONCLUSION

While the numbers in some areas show a decrease, it is apparent by these data that agriculture in its many forms and variation is healthy, thriving and contributing to the local economy in ways that far exceed other economic drivers.

Agriculture remains steady on its foundation of driving the local economy as evidenced by its lead in several areas of production, i.e., cattle, both beef and dairy, oats and alfalfa and even grapes and wine production. Rich in good soil, plentiful water and a reasonably long growing season, the county enjoys high production levels, good employment and payroll numbers, steady tax revenues and increasing organic, and non-traditional agricultural endeavors.

The county's Comprehensive Economic Development Strategies (CEDS) Committee in its 2006 economic strategies report recognized the importance of agriculture with this statement: ***Protection of our strong agricultural industry and heritage are primary considerations for economic development***. Further, the report states: ***Proposals will be judged by their ability to protect, preserve and enhance the agricultural economy and the existing farmlands***, including but not limited to:

- Productive farms and farmland
- Agri-business

Action items encouraged by the CEDS report include:

1) Encourage alternative agriculture, i.e., organic and natural foods, vineyards and wineries, livestock and other products
2) Encourage local products locally marketed for enhancement of local restaurant and tourism potential
3) Encourage and enhance agri-tourism opportunities

In its 2009 update, the CEDS document[14] affirms these statements and adds that this report shall be utilized as both an educational tool and a method for marketing the region for to encourage more farming and attract additional agricultural business to the county.

Agriculture – farming, and farm-related business and industry – just keeps "growing" Jo Daviess County.

[14] CEDS document to be published online in fourth quarter, 2009.

Sources of Data and Information

The Economic Impact of Illinois' Livestock Industry, Dr. Peter Goldsmith and Durga Saripally

Economic Impact of Wine and Winegrapes in Illinois, 2005, Illinois Grape Growers and Vintners Association

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United States Department of Agriculture (USDA) National Agriculture Statistical Survey (NASS), 2002

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