Millionaire Model Dairy Farm Performance in Iowa, 2016

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Summary and Implications

A Millionaire Model Dairy Farm (MMDF) project was created by this author in the 1990's. Its goal was to show beginning and transitioning dairy producers how to become "millionaires" within 25 years of a dairy career by practicing a hybrid grazing and confinement operation. It has been a very successful Extension program. In 2012, organic dairy producers were added and in 2015, conventional dairy producers were added to the data. In 2016, GrassMilk® or "no-grain" farms were separated into their own data set due to their competitive profitability with the Higher Profit farms. Note the small number of herds in each data set may or may not be representative of an average of those types of farms.

Thanks to a Risk Management Education (RME) Competitive Grant, ISU Extension and Outreach has created a 2016 comparative analysis of the following four MMDF systems:

1) **5 Conventional Dairy Farms (CONV)**— milking an average of 284 cows and operating 652 acres. These farms tend to house cows in a confinement freestall facility year-round.
2) **4 Hybrid Grazing Dairy Farms (HGRAZ)**— milking an average of 179 cows and operating 216 acres. These farms graze 6-8 months of the year but house cows in a freestall facility as desired.
3) **8 Organic Grazing Dairy Farms (ORG)**— milking an average of 78 cows and operating 319 acres. These farms graze 6-8 months of the year and have facilities ranging from tie-stall to freestall barns.
4) **3 Organic, No-Grain Farms (ORG-NG)**— milking an average of 77 cows and operating 245 acres. These farms graze 6-9 months of the year, feed a "no-grain" diet and house cows like the other organic farms.

Profitability was determined based on a combination of the following measures:

1) return to unpaid labor per hour
2) cost of milk production per cwt equivalent (cwt eq)
3) rate of return on assets

For each of the MMDF systems, the data was analyzed into both an Average group and a Higher Profit group. The Averages of each MMDF system are displayed in Table 1 (page 4) while the Higher Profit farms for each MMDF system are displayed in Table 2 (page 5).

Bottom line is that all four systems studied can be profitable. It is the opinion of this author that, in all of the systems, the labor efficiency is key to profit success, even more so than milk production per cow.

It is hoped this study will assist current and aspiring dairy producers, in any of the systems, to analyze and benchmark their dairy operations to better plan for future profits.

Introduction

There is great interests in beginning and young (and even experienced) dairy producers in different dairy systems, with particular interests in evaluating dairy farm profitability. The objective of this work is a continuation of the Millionaire Model Dairy Farms project with focus to generate individual and comparative farm financial analyses across different dairy systems.

Materials and Methods

Thanks to a Risk Management Education (RME) Competitive Grant, ISU Extension and Outreach has created a 2016 comparative analysis of the following four MMDF systems:

1) **5 Conventional Dairy Farms (CONV)**— milking an average of 284 cows and operating 652 acres. These farms tend to house cows in a confinement freestall facility year-round.
2) **4 Hybrid Grazing Dairy Farms (HGRAZ)**— milking an average of 179 cows and operating 216 acres. These farms graze 6-8 months of the year but house cows in a freestall facility as desired.
3) **8 Organic Grazing Dairy Farms (ORG)**— milking an average of 78 cows and operating 319 acres. These farms graze 6-8 months of the year and have facilities ranging from tie-stall to freestall barns.
4) **3 Organic, No-Grain Farms (ORG-NG)**— milking an average of 77 cows and operating 245 acres. These farms graze 6-9 months of the year, feed a "no-grain" diet and house cows like the other organic farms.

Each farm's data was entered into the Dairy TRANS Financial Analysis program to analyze profitability. Profitability was determined based on a combination of the following measures:

4) return to unpaid labor per hour
5) cost of milk production per cwt equivalent (cwt eq)
6) rate of return on assets

For each of the MMDF systems, the data was analyzed into three sets: 1) Average 2) Higher Profit and 3) Lower Profit.

Results and Discussion

Comparison Highlights from Average of the Farms (Table 1)

The average **milk sold per cow** was 25,663 lbs. for the CONV herds; 17,775 lbs. for the HGRAZ herds; 13,820 lbs. for the ORG herds; and 8,134 lbs. for the ORG-NG herds. Relative to CONV herds, the HGRAZ herds produced 69%, ORG herds 54%, and ORG-NG herd 32% of milk comparatively.

CONV farms had an average **cash income** of $5,342 per cow relative to HGRAZ farms at $3,306; ORG farms at $5,909; and ORG-NG farms at $3,946. CONV farms had an average **cash expense** of $4,266 per cow compared to HGRAZ farms at $2,551; ORG farms at $3,515 and ORG-NG farms at $1,747. This computes to a **net cash income** for CONV farms at $1,076 per cow; for HGRAZ farms at $756 per cow; for ORG farms at $2,394 per cow; and ORG-NG farms at $2,199 per cow. After inventory adjustments, **net farm income** for CONV farms was $897 per cow while HGRAZ farms had $761 per cow; ORG had $2,367 per cow; and ORG-NG farms had $2,213 per cow.

All farms were given an **equity charge** of 4% across all farm assets as no interest charges were included in the cash expenses. After subtracting this charge, **return to unpaid labor (and management) per cow** for the CONV farms was $443; for the HGRAZ farms was $346; for the ORG farms was $1,644; and for the ORG-NG farms was $1,495.

Each farm estimated the number of unpaid labor hours of the main operators. **Labor earnings per unpaid labor hour** for the CONV farms was $21.44; HGRAZ farms was $14.27; ORG farms was $27.06; and ORG-NG farms was $$32.69. *Note* that in 2015, the HGRAZ farms averaged $30.89 return per unpaid labor hour, $21.65 for the CONV farms and $23.55 for the ORG and ORG-NG farms combined. In this small data set, one HGRAZ farm went through an expansion and related growing pains that was the biggest factor causing the HGRAZ system to go from the highest profit per labor hour in 2015 to the lowest in 2016.

To calculate a cost of production, all non-milk income was divided by the milk price, then added to milk cwts. sold to obtain a **cwt. eq**. total. From a **cost of production** standpoint, the average CONV farm had a milk price of $16.64/cwt of milk sold with a cost of $16.19/cwt eq (same as 2015) for a net income of $0.45/cwt eq. The average HGRAZ farm had a milk price of $16.16/cwt with a cost of $15.83/cwt eq for a net income of $0.32/cwt eq. The ORG farms had a milk price of $34.93/cwt. (versus 36.80/cwt in 2015 when ORG-NG farms were included). The ORG farms had a cost of $29.19/cwt eq for a net income of $5.74/cwt eq. The ORG-NG farms had a milk price of $41.24/cwt with a cost of $32.08/cwt eq for a net income of $9.16/cwt eq. Relative to the ORG farms, the CONV farms received just under half (47%) of their milk price while the ORG-NG farms received a $5/cwt premium over the ORG herds.

Return to assets, which is an important, all-inclusive measure that marries the net worth statement and the net farm income statement giving a percent return that can be compared to the outside financial markets. But, compare with caution as various farms rent or lease land, cows and/or machinery, rather than own which can greatly affect this measure. This survey shows CONV farms receiving return to assets of 5.75%; HGRAZ farms receiving 4.59%; ORG farms receiving 8.83%; and the ORG-NG farms receiving 9.54%.

2016 brought relatively low conventional milk prices. The **HGRAZ and ORG farms (including ORG-NG) had a significant profit advantage in 2015, only the ORG and ORG-NG had a significant profit advantage in 2016** in respect to the return to unpaid labor hours; the net income per cwt eq. of milk; net income per cow; and return to assets.

Comparison Highlights from Higher Profit Farms (Table 2)

The top farms were also studied with the understanding that all the farms participating in the study were hand selected as good "Model" farms. The top three CONV farms, the top two HGRAZ farms, the top four ORG farms, and all three ORG-NG farms (since all were highly profitable) were analyzed with each group representing the top 50-60% of the farms in terms of profitability. Thus, for the ORG-NG group, the Average and Higher Profit groups are the same.

Bottom line with the Higher Profit farms is that all the trends and profit measures, though better, were relatively similar to each other in the same ways as the Average data set, except the Higher Profit CONV farms surpassed the Higher Profit ORG and ORG-NG farms in terms of return to unpaid labor. The Higher Profit Conventional farms earned $34.98 per unpaid labor hour compared to the HGRAZ farms at $21.97 (was $35.47 in 2015); compared to the ORG farms at $33.30; and compared to the ORG-NG farms at $32.69. Economies of scale contribute to the advantage of the CONV farms here.

The Higher Profit CONV farms received $16.08/cwt for their milk with an expense of $14.84/cwt eq for a net income of $1.23/cwt eq. The HGRAZ farms received $16.39/cwt for their milk with an expense of $15.12/cwt eq for a net income of $1.27/cwt eq. The ORG farms received $35.58/cwt for their milk with an expense of $27.62/cwt eq for a net income of $7.96/cwt eq. The ORG-NG farms received $41.24/cwt for their milk with an expense of $32.08/cwt. eq for a net income of $9.16.

The CONV farms had a return to assets of 8.04% compared to the HGRAZ farms at 6.35%; the ORG farms

at 9.68%; and the ORG-NG farms at 9.54%. When comparing the Higher Profit groups, the profit advantage of the ORG and ORG-NG is less distinct and even minimalized with CONV.

But, again, if one HGRAZ farm mentioned previously did not go through an expansion, the Higher Profit HGRAZ group might have been the highest profit group. This sheds light on how one farm can dramatically change the results where comparing farms using small data sets such as this project.

Other Financial and Production Highlights

This data set that shows the "**system of milk production" is more important than milk production per cow**. But, within each system, milk production would tend to impact profitability though not as dramatic in this 2016 data. For the CONV farms, the Higher Profit farms had 6.2% higher milk production than the Average farms but milk production was more similar for the other groups when comparing Higher Profit to Average Profit groups.

Labor efficiency often seems to be the biggest driver of profits. But, in the 2016 data, it seems less significant. A full time equivalent (FTE) laborer is 3,000 hours annually. On average, milk sold per FTE for the CONV farms was 1.17 million lbs.; the HGRAZ farms was 1.29 million lbs.; the ORG farms was 457,500 lbs.; and the ORG-NG farm was 433,700 lbs. The HGRAZ farms milk output per FTE was 10% higher than the CONV farms and almost three times higher than both the ORG and ORG-NG farms. HGRAZ farms milked 72 cows per FTE versus 46 for the CONV farms; 34 for the ORG farms; and 50 for the ORG-NG farms. HGRAZ farms also had the lowest total labor costs per cow at $625 versus $869 for the CONV farms; $1,180 for the ORG farms; and $809 for the ORG-NG farms.

It is worthy to note that the majority of producers mentioned 2016 as being a good crop year. This assisted all the systems but especially the CONV system as on average they sold $430 worth of feed per cow, followed by the ORG group with $183 worth of feed sold per cow. The CONV group, in this author's opinion, were extremely good crop managers and because this is a whole farm analysis, their crop enterprise profits played a role in their profitability.

Lastly, this project shows that profitability among the systems studied will vary by year, especially due to conventional milk prices within any given year studied. Thus, long term studies become important. It is hoped this study will assist current and aspiring dairy producers, in any of the systems, to analyze and benchmark their dairy operations to better plan for future profits and realize there is profit in dairying!

Conventional Milk Price Drives Most Profitable System

In both years of this study, 2015 and 2016, CONV milk prices were relatively low. If CONV milk prices would have been $1/cwt higher in 2016, this change would have added an estimated $12.32 increased return per labor hour and 1.78% return to assets using the Dairy TRANS financial analysis.

Thus, only a $1-$2/cwt increase in the milk price would have made both the CONV and HGRAZ farms very competitive with both the ORG and ORG-NG farms.

Based on data from both 2015 and 2016 and this estimation, conventional milk prices in the $18-$20 range would make both the CONV and HGRAZ producers very competitive relative to ORG and ORG-NG farm. Above $20/cwt average milk price, a very significant advantage would seemingly go to both the CONV and HGRAZ farms.

The bottom line profits between conventional (CONV and HGRAZ) and organic (ORG and ORG-NG) dairying in the future is unknown due both conventional and organic milk prices. Within the $18-$20/cwt. conventional milk price range, given current cost structures and organic milk prices, it seems all systems can be competitively profitable with probably as much variability among farms within systems as among the systems.

Thanks to the ISU Extension and Outreach Dairy Team for their review and assistance with this project. For more information visit the ISU Dairy Team at: www.extension.iastate.edu/dairyteam

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Table 1. Financial and Production Comparison of 5 Conventional, 4 Hybrid Grazing, 8 Organic and 3 Organic No-Grain Dairy Farms in Iowa, 2016

	CONV			HGRAZ			ORG			ORG-NG		
Iowa Model Dairy Farms 2016	**Average Conventional Farms**	**/Cow**	***(n=5)***	**Average Hybrid Grazing Farms (4)**	**/Cow**	***(n=4)***	**Average Organic Farms Fed Grain**	**/Cow**	***(n=8)***	**Ave Organic No-Grain Farms**	**/Cow**	***(n=3)***
Productive Crop Acres Operated	652	2.30		216	1.21		319	4.10		245	3.15	
Average Number of Cows	284			179			78			77		
Total Assets on Farm	**$3,248,169**	**$11,453**		**$1,865,594**	**$10,437**		**$1,413,885**	**$18,170**		**$1,413,867**	**$18,170**	
Milk Price	**$16.64**			**$16.16**			**$34.93**			**$41.24**		
Milk Hundred weight Equiv.	93,481	330		38,229	214		13,042	168		7,854	101	
Milk Hundredweights	71,706	253		32,501	182		11,088	142		6,761	87	
Milk Sales	**$1,193,466**	**$4,208**		**$527,056**	**$2,949**		**$384,793**	**$4,945**		**$272,421**	**$3,501**	
Cull Cow Sales	$77,299	$273		$35,818	$200		$13,930	$179		$11,459	$147	
Calf Sales	$24,566	$87		$16,707	$93		$6,973	$90		$4,631	$60	
Crop Sales	$121,875	$430		$0	$0		$14,217	$183		$0	$0	
Other Income	$97,847	$345		$11,422	$64		$39,891	$513		$18,548	$238	
Total Cash Income	**$1,515,053**	**$5,342**	**Cwt.Eq.**	**$591,004**	**$3,306**	**Cwt.Eq.**	**$459,804**	**$5,909**	**Cwt.Eq.**	**$307,059**	**$3,946**	**Cwt.Eq.**
Veterinary, Medicine	$39,413	$139	$0.42	$11,944	$67	$0.31	$8,504	$109	$0.65	$1,292	$17	$0.10
Dairy Supplies	$51,743	$182	$0.55	$22,936	$128	$0.60	$14,780	$190	$1.13	$14,323	$184	$1.10
Breeding Fees	$12,588	$44	$0.13	$7,683	$43	$0.20	$1,153	$15	$0.09	$1,382	$18	$0.11
Feed Purchased	$369,705	$1,304	$3.95	$214,083	$1,198	$5.60	$54,938	$706	$4.21	$20,344	$261	$1.56
Repairs	$68,342	$241	$0.73	$17,589	$98	$0.46	$23,482	$302	$1.80	$23,081	$297	$1.77
Seed, Chem, Fert	$122,183	$431	$1.31	$18,151	$102	$0.47	$31,615	$406	$2.42	$21,206	$273	$1.63
Fuel, Gas, and Oil	$28,841	$102	$0.31	$10,695	$60	$0.28	$13,022	$167	$1.00	$10,421	$134	$0.80
Utilities	$31,647	$112	$0.34	$11,648	$65	$0.30	$8,982	$115	$0.69	$7,385	$95	$0.57
Interest Paid -- not included	$0			$0			$0			$0		
Labor Hired	$189,743	$669	$2.03	$54,854	$307	$1.43	$22,034	$283	$1.69	$11,162	$143	$0.86
Rent, Lease and Hire	$221,078	$780	$2.36	$47,536	$266	$1.24	$67,429	$867	$5.17	$2,333	$30	$0.18
Property Taxes	$6,065	$21	$0.06	$4,637	$26	$0.12	$5,952	$76	$0.46	$6,216	$80	$0.48
Farm Insurance	$21,283	$75	$0.23	$11,875	$66	$0.31	$6,808	$87	$0.52	$5,415	$70	$0.42
Other Cash Expense	$47,284	$167	$0.51	$22,291	$125	$0.58	$14,822	$190	$1.14	$11,407	$147	$0.87
Total Cash Expense	**$1,209,915**	**$4,266**	**$12.94**	**$455,923**	**$2,551**	**$11.93**	**$273,519**	**$3,515**	**$20.97**	**$135,967**	**$1,747**	**$10.43**
Net Cash Income	**$305,137**	**$1,076**	**$3.26**	**$135,081**	**$756**	**$3.53**	**$186,285**	**$2,394**	**$14.28**	**$171,091**	**$2,199**	**$13.12**
Inventory Change	-$50,684	-$179	-$0.54	$984	$6	$0.03	-$2,079	-$27	-$0.16	$1,095	$14	$0.08
Net Farm Income	**$254,453**	**$897**	**$2.72**	**$136,064**	**$761**	**$3.56**	**$184,206**	**$2,367**	**$14.12**	**$172,186**	**$2,213**	**$13.20**
Equity @ 4% across all assets	$128,843	$454	$1.38	$74,157	$415	$1.94	$56,292	$723	$4.32	$55,849	$718	$4.28
Return to Labor	**$125,610**	**$443**	**$1.34**	**$61,907**	**$346**	**$1.62**	**$127,914**	**$1,644**	**$9.81**	**$116,338**	**$1,495**	**$8.92**
Labor Earnings Per Hour	**$21.44**			**$14.27**			**$27.06**			**$32.69**		
Gross Income per Cwt. Eq.	$16.64			$16.16			$34.93			$41.24		
Gross Expense per Cwt. Eq.	$16.19			$15.83			$29.19			$32.08		
Net Income per cwt.	**$0.45**			**$0.32**			**$5.74**			**$9.16**		
Return to All Labor per FTE Labor	$44,972			$48,774			$66,973			$84,346		
Number of Cows per FTE Labor	46			72			34			50		
Cwts. of Milk Sold per FTE Labor	**11,709**			**12,925**			**4,575**			**4,337**		
Pounds of Milk Sold per Cow	**25,663**			**17,775**			**13,820**			**8,134**		
Productive Crop Acres per Cow	2.1			1.4			4.0			3.0		
Capital Cost per Cow	$709			$554			$1,120			$808		
All Labor Costs per Cow	$869			$625			$1,180			$809		
Fixed Cost per Cow (DIRTI)	$1,053			$745			$1,580			$1,258		
Capital Invested per Cow	$9,424			$9,993			$20,422			$16,558		
Net Farm Income per Crop Acre	$448			$651			$748			$823		
Lbs. Milk Produced per Crop Acre	13,993			15,903			3,784			3,101		
Fert/Chem/Seed Cost/Crop Acre	$180			$94			$94			$88		
All Labor as Percent of Total Costs	17%			20%			26%			25%		
Fixed Cost as Percent of Total Cost	20%			24%			40%			39%		
****Net Farm Income From Operations**	**$254,453**			**$136,064**			**$184,206**			**$172,186**		
****Rate of Return on Assets**	**5.75%**			**4.59%**			**8.83%**			**9.54%**		
****Operating Profit Margin**	**11.43%**			**15.42%**			**34.18%**			**38.70%**		
****Asset Turnover Ratio**	**49.23%**			**32.77%**			**34.54%**			**25.06%**		
Dairy TRANS Peformance Rating	**64.20%**			**68.25%**			**71.50%**			**78.00%**		

by Larry Tranel, Dairy Field Specialist, Iowa State University Extension and Outreach, 2016

Table 2. Financial and Production Comparison of 3 Conventional, 2 Grazing and 4 Organic "Higher Profit" Dairy Farms with 3 "Average" No Grain Farms												
	CONV			HGRAZ			ORG			ORG-NG		
Iowa Model Dairy Farms 2016	Higher Profit Conventional Farms (3)	/Cow	(n=3)	Higher Profit Grazing Farms (2)	/Cow	(n=2)	Higher Profit Organic Farms	/Cow	(n=2)	Ave Organic No-Grain Farms	/Cow	(n=3)
Productive Crop Acres Operated	773	2.56		213	1.59		457	4.67		245	3.15	
Average Number of Cows	302			134			98			77		
Total Assets on Farm	**$4,124,270**	**$13,657**		**$1,378,952**	**$10,291**		**$1,855,017**	**$18,953**		**$1,413,867**	**$18,170**	
Milk Price	**$16.08**			**$16.39**			**$35.58**			**$41.24**		
Milk Hundred weight Equiv.	108,226	358		30,242	226		15,833	162		7,854	101	
Milk Hundredweights	80,097	265		25,232	188		13,839	141		6,761	87	
Milk Sales	**$1,304,214**	**$4,319**		**$399,557**	**$2,982**		**$481,961**	**$4,924**		**$272,421**	**$3,501**	
Cull Cow Sales	$95,532	$316		$27,272	$204		$13,972	$143		$11,459	$147	
Calf Sales	$25,212	$83		$12,058	$90		$7,412	$76		$4,631	$60	
Crop Sales	$198,726	$658		$0	$0		$13,461	$138		$0	$0	
Other Income	$111,436	$369		$13,714	$102		$57,794	$590		$18,548	$238	
Total Cash Income	**$1,735,119**	**$5,745**	/Cwt.Eq.	**$452,600**	**$3,378**	/Cwt.Eq.	**$574,599**	**$5,871**	/Cwt.Eq.	**$307,059**	**$3,946**	/Cwt.Eq.
Veterinary, Medicine	$37,703	$125	$0.35	$7,914	$59	$0.26	$5,288	$54	$0.33	$1,292	$17	$0.10
Dairy Supplies	$56,283	$186	$0.52	$22,267	$166	$0.74	$14,180	$145	$0.90	$14,323	$184	$1.10
Breeding Fees	$13,227	$44	$0.12	$4,483	$33	$0.15	$2,305	$24	$0.15	$1,382	$18	$0.11
Feed Purchased	$361,073	$1,196	$3.34	$134,300	$1,002	$4.44	$75,019	$766	$4.74	$20,344	$261	$1.56
Repairs	$69,603	$230	$0.64	$10,195	$76	$0.34	$31,550	$322	$1.99	$23,081	$297	$1.77
Seed, Chem, Fert	$152,788	$506	$1.41	$13,217	$99	$0.44	$42,880	$438	$2.71	$21,206	$273	$1.63
Fuel, Gas, and Oil	$32,251	$107	$0.30	$8,534	$64	$0.28	$16,249	$166	$1.03	$10,421	$134	$0.80
Utilities	$27,418	$91	$0.25	$12,086	$90	$0.40	$11,125	$114	$0.70	$7,385	$95	$0.57
Interest Paid -- not included	$0		$0.00	$0		$0.00	$0		$0.00	$0		
Labor Hired	$224,556	$744	$2.07	$29,900	$223	$0.99	$32,711	$334	$2.07	$11,162	$143	$0.86
Rent, Lease and Hire	$249,015	$825	$2.30	$58,475	$436	$1.93	$69,179	$707	$4.37	$2,333	$30	$0.18
Property Taxes	$5,453	$18	$0.05	$3,123	$23	$0.10	$9,506	$97	$0.60	$6,216	$80	$0.48
Farm Insurance	$19,444	$64	$0.18	$8,189	$61	$0.27	$10,803	$110	$0.68	$5,415	$70	$0.42
Other Cash Expense	$29,552	$98	$0.27	$19,805	$148	$0.65	$19,164	$196	$1.21	$11,407	$147	$0.87
Total Cash Expense	**$1,278,367**	**$4,233**	**$11.81**	**$332,484**	**$2,481**	**$10.99**	**$339,959**	**$3,473**	**$21.47**	**$135,967**	**$1,747**	**$10.43**
Net Cash Income	**$456,752**	**$1,512**	**$4.22**	**$120,116**	**$896**	**$3.97**	**$234,639**	**$2,397**	**$14.82**	**$171,091**	**$2,199**	**$13.12**
Inventory Change	-$93,396	-$309	-$0.86	$14,746	$110	$0.49	-$1,001	-$10	-$0.06	$1,095	$14	$0.08
Net Farm Income	**$363,356**	**$1,203**	**$3.36**	**$134,862**	**$1,006**	**$4.46**	**$233,638**	**$2,387**	**$14.76**	**$172,186**	**$2,213**	**$13.20**
Equity @ 4% across all assets	$146,397	$485	$1.35	$54,099	$404	$1.79	$73,935	$755	$4.67	$55,849	$718	$4.28
Return to Labor	**$216,959**	**$718**	**$2.00**	**$80,763**	**$603**	**$2.67**	**$159,703**	**$1,632**	**$10.09**	**$116,338**	**$1,495**	**$8.92**
Labor Earnings Per Hour	**$34.98**			**$21.97**			**$33.30**			**$32.69**		
Gross Income per Cwt. Eq.	$16.08			$16.39			$35.58			$41.24		
Gross Expense per Cwt. Eq.	$14.84			$15.12			$27.62			$32.08		
Net Income per cwt.	**$1.23**			**$1.27**			**$7.96**			**$9.16**		
Return to All Labor per FTE Labor	$58,377			$59,147			$79,256			$84,346		
Number of Cows per FTE Labor	43			71			41			50		
Cwts. of Milk Sold per FTE Labor	**11,897**			**13,189**			**5,251**			**4,337**		
Pounds of Milk Sold per Cow	**27,252**			**18,051**			**13,384**			**8,134**		
Productive Crop Acres per Cow	2.38			1.71			4.54			3.0		
Capital Cost per Cow	$798			$522			$1,044			$808		
All Labor Costs per Cow	$951			$590			$886			$809		
Fixed Cost per Cow (DIRTI)	$1,115			$687			$1,567			$1,258		
Capital Invested per Cow	$10,187			$9,647			$17,954			$16,558		
Net Farm Income per Crop Acre	$542			$707			$616			$823		
Lbs. Milk Produced per Crop Acre	12251			14563			3209			3,101		
Fert/Chem/Seed Cost/Crop Acre	$186			$85			$80			$88		
All Labor as Percent of Total Costs	18.08%			19.21%			25.41%			25%		
Fixed Cost as Percent of Total Cost	20.94%			22.93%			49.75%			39%		
****Net Farm Income From Operation**	**$363,356**			**$134,862**			**$233,638**			**$172,186**		
****Rate of Return on Assets**	**8.04%**			**6.35%**			**9.68%**			**9.54%**		
****Operating Profit Margin**	**16.64%**			**20.34%**			**41.90%**			**38.70%**		
****Asset Turnover Ratio**	**47.13%**			**35.53%**			**30.80%**			**25.06%**		
Dairy TRANS Peformance Rating	**73.00%**			**79.50%**			**75.25%**			**78.00%**		
by Larry Tranel, Dairy Field Specialist, Iowa State University Extension and Outreach, 2016												