

# Organic Dairy Profits in Iowa - 2014

## A.S. Leaflet R3076

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### Summary and Implications

Organic dairy producers (and others who aspire to this profession) need sound economic data and analyses to make decisions. This study analyzed and evaluated the profitability of 15 Iowa organic dairies using Dairy TRANS Financial Analysis software. On average, these 15 dairies showed “good” profitability for 2014 but there was a wide range of results. It is hoped these ongoing studies will assist current and aspiring organic dairy producers to both budget and benchmark their dairy operations to better plan for future profitability. Producers are also urged to consider using the Dairy TRANS Financial Analysis to analyze and further improve dairy profits regardless of the production system being utilized.

### Introduction

Interest continues to grow in organic dairying by consumers, producers and processors. Organic dairying has its production challenges but good profits can be earned for producers who manage the organic system well. The proof is in the numbers.

### Materials and Methods

Iowa State University Extension teamed up with CROPP Cooperative/Organic Valley to analyze the 2014 profits of 15 Iowa dairy farms. The results were broken down into four sections, each shown in a three column format depicting dollar values, per cow values, and per cwt. equivalent values for applicable income and expense items. The four sections include 1) Average of all 15 farms 2) “High Profit” group consisting of the five most profitable farms, 3) “Medium Profit” group consisting of the five next most profitable farms, and 4) “Low Profit” group consisting of the five least profitable farms. Profitability was determined based on 1) return on assets 2) return to unpaid labor hour, and 3) net return per cwt. equivalent of milk produced. Each farm used the Dairy TRANS Financial Analysis program to analyze profitability.

To maintain fairness in comparing farms with varying debt loads, an equity charge of 4% of total farm assets was used. So, whether the assets were owned or borrowed, the charge was equal across all farms. This also allowed producers to participate without sharing confidential information about debts or total net worth. Note that this impacts the analysis in that the cash expenses do not include interest expense. This affects cash related ratios and calculations.

## Results and Discussion

### Average of All 15 Farms\*

The average farm employed 73 cows and operated 3.64 acres of productive land per cow. Assets totaled \$16,349 per cow. Total cash incomes per cow were \$4,447 with total cash expenses of \$2,902 giving a net cash income per cow of \$1,545. Adding a \$102 per cow inventory gain gives a **net farm income of \$1,647 per cow** or \$120,332 per farm. After subtracting \$47,177 for an equity charge, the **return to unpaid labor averaged \$1,001 per cow** or \$73,155 per farm. This gives a **return of \$19.49 per unpaid labor hour**.

The average milk price received was \$31.57 per cwt. equivalent. Total expenses, including both equity and unpaid labor, were \$30.94 for a net income per cwt. equivalent of \$0.63. The **rate of return on assets was 4.7%** with an operating profit margin of 17.01% and an asset turnover ratio of 32.39%. Thus, these 15 organic dairies show “Average” profitability for 2014.

On average, these farms handled 36 cows per FTE (Full Time Equivalent of labor or 3,000 hours/yr.) selling 4,042 cwt. equivalents of milk per FTE and 11,658 pounds of milk per cow. These data sets defy traditional milk production logic, with the High Profit group having the lowest milk production per cow. However, there was only a 7.5% difference in the average milk production among the three groups.

Also, it is notable that the most profitable farm in the study also had the highest milk production per cow and the 4<sup>th</sup> highest milk production farm also made it into the High Profit Group. The major point that is causing the inverse relationship of profit versus milk production in the data set is that two farms that have reduced grain feeding levels to near zero made their way into the most profitable farms with herd averages in the 6,000-7,000 pounds of milk range. One farm was receiving a “no-grain” premium of \$4/cwt. for about half of the year, while the other was not.

### Average of the High Profit Farms

The High Profit organic farms compete quite well with other dairy systems in terms of profit relative to return on assets at 7.94% and earnings of \$38.78 per hour of unpaid labor. Return on assets ranged from 5.7% to 12.3% in this group and total cost of production ranged from \$22.14 to \$29.95 per cwt equivalent. *The bottom line is that these high profit organic farms can not only compete with the best of the grazing and conventional dairy systems, but may have the least risk due to the more stable milk price received.*

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These High Profit organic farms averaged 108 cows per farm and had 3.99 acres of productive land owned or rented per cow. Assets totaled \$18,259 per cow. A milk price of \$31.47 per cwt. equivalent was earned in 2014, again with one producer earning a \$4/cwt. “no grain” premium for half the year.

Total cash income of \$4,289 per cow was achieved with cash expenses (excluding interest) of \$2,457 per cow to achieve a net cash income of \$1,832 per cow. Adding in a positive inventory change of \$177 per cow gives a **net farm income of \$2,009 per cow**. Subtracting a \$719 equity charge per cow gives a **return to labor of \$1,290 per cow** or \$139,356 per farm on average for the owner-operator. With 4,140 hours of unpaid labor, this equates to a **return of \$38.78 per hour**—a very respectable labor return.

Labor efficiency is often highly correlated with overall profit with the style of milking parlor often having a major impact. It is not a coincidence that the highest profit farms tended to milk in a labor efficient TRANS Iowa Low Cost Parlor or similar type. Note these farms profited on labor efficiency items such as cows per FTE; cwts. sold per FTE; and labor cost per cow. Other contributors to profit were less purchased feed due to both more acres per cow and suspected better crop production.

Moreover, these high profit farms had average total production costs of \$26.76 per cwt. equivalent, including labor and equity, for a profit level of \$4.71 per cwt. equivalent—a good margin of profit! Again, this total production cost includes the opportunity cost of both equity and unpaid labor.

### Average of the Medium Profit Farms

Five farms received a Dairy TRANS profit rating of “Good or Average” for 2014. This group of producers had a highly variable make-up with producers milking from 25 to 116 cows and with milk production ranging between 8,000 to 15,500 pounds per cow. Milk prices received in this group ranged from \$29.99 to \$38.67 per cwt. Thus, this medium profit organic farm group has a varied personality and gives confidence to the viability of the small organic, low-input dairy. Although it is the opinion of this author that “no grain” and “low grain” feeding are not the most profitable option, producer data is proving that it can be viable, even if not the most profitable.

These Medium Profit organic farms averaged 73 cows per farm and had 3.28 acres of productive land owned or rented per cow. Assets totaled \$12,816 per cow. Total cash income was higher than the other groups at \$4,983 per cow due in part to other non-dairy enterprises difficult to separate out. They also had the highest cash expenses (excluding interest) of \$3,707 per cow to achieve a net cash income of \$1,276 per cow. Subtracting a \$16 inventory change per cow gives a **net farm income of \$1,260 per cow**.

Subtracting a \$508 equity charge per cow gives a **return to labor of \$752 per cow** or \$54,769 per farm on



average for the owner-operator(s). With 4,380 hours of unpaid labor this equates to **\$12.41 earnings per hour**, 32% of the labor earnings of the high profit organic farms. They had a milk price of \$33.12 with total production costs of \$32.95 per cwt. equivalent, including labor and equity costs for a close to breakeven profit level of \$0.17 per cwt. equivalent.

The **rate of return on assets was 4.35%** with an operating profit margin of 11.44% and an asset turnover ratio of 50.81%, meaning it only takes two years to gross enough income to pay for all the assets.

### Average of the Low Profit Farms

The five Low Profit organic dairy farms had total costs of producing milk higher than the milk price they were receiving with an average price of \$30.13 and an average cost of \$33.09 for a net income per cwt. equivalent of -\$2.97. These farms averaged 38 cows with 3.35 acres of productive land per cow. Assets totaled \$17,667 per cow. The milk production level per cow of these herds was 11,952—7.5% higher than the High Profit group and 1% higher than the Medium Profit group. Again, labor efficiency tends to contribute more to profit than milk production per cow.

Total cash incomes were \$3,877 per cow with total cash expenses of \$2,626 which gives a net cash income of \$1,250 per cow. Inventory gains of \$111 per cow gave a **net farm income of \$1,361 per cow** or \$52,280 per farm. Subtracting \$26,940 for equity, the **return to labor averaged \$660 per cow** or \$25,340 per farm or **\$7.28 per hour of unpaid labor earnings**. The rate of return on assets was 1.81% with an operating profit margin of 7.18% and an asset turnover ratio of 23.95%.

### Bottom Line and Summary

Organic dairying can be as profitable as conventional grazing and confinement systems. Milk production per cow is not well correlated to profit though the highest profit farm had the highest milk production. Labor efficiency is a great strength of the High Profit farms with significantly more cows per FTE (43 vs. 33); more cwts. sold per FTE (4,566 vs 3,897 and 3,664); and less labor cost per cow (\$807 vs. \$1,093 and \$1,361).

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High Profit farms again had higher fertilizer and seed cost per acre similar to 2013 data in Iowa. Higher crop inputs seemingly translate into higher feed production per acre and less purchased feed costs per cow.

The following two pages exhibit the detailed data of the 15 Iowa organic farms analyzed. Remember, cash expense data does not include interest expense. Also, realize this study represents 15 hand-selected farms so may or may not be representative of all dairy farms in Iowa.

It is hoped this study will assist current and aspiring organic dairy producers to both budget and benchmark their dairy operations to better plan for future profits. Producers are also urged to consider using the Dairy TRANS Financial Analysis to analyze and further improve dairy profits.

*\*Note: The “average” is calculated as the sum of the individual five farms for each item, not a previous item’s sum divided by another item’s sum, which yields slightly different results.*

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Organic Dairy Farms 2014 Iowa	Average of All 10 Farms /Cow		Average of High Profit Farms(5) /Cow			Average of Medium Profit Farms(5) /Cow			Average of Low Profit Farms (5) /Cow		
Productive Crop Acres Operated	266	3.64	431	3.99	239	3.28	129	3.35			
Average Number of Cows	73		108		73		38				
<b>Total Assets on Farm</b>	<b>\$1,194,550</b>	<b>\$16,349</b>	<b>\$1,971,996</b>	<b>\$18,259</b>	<b>\$933,249</b>	<b>\$12,819</b>	<b>\$678,407</b>	<b>\$17,667</b>			
<b>Milk Price</b>	<b>\$31.57</b>		<b>\$31.47</b>		<b>\$33.12</b>		<b>\$30.13</b>				
Milk Hundred weight Equiv.	11,077	152	16,154	150	11,722	161	5,355	139			
<b>Milk Hundredweights</b>	<b>8,556</b>	<b>117</b>	<b>11,896</b>	<b>110</b>	<b>9,599</b>	<b>132</b>	<b>4,174</b>	<b>109</b>			
Milk Sales	<b>\$267,463</b>	<b>\$3,661</b>	<b>\$370,951</b>	<b>\$3,435</b>	<b>\$305,618</b>	<b>\$4,198</b>	<b>\$125,820</b>	<b>\$3,277</b>			
Cull Cow Sales      Cull Rate%	\$16,074	\$220	\$24,772	\$229	\$13,608	\$187	\$9,843	\$256			
Calf Sales	\$7,894	\$108	\$10,556	\$98	\$8,732	\$120	\$4,393	\$114			
Crop Sales	\$15,029	\$206	\$30,341	\$281	\$8,511	\$117	\$6,235	\$162			
Other Income	\$18,493	\$253	\$26,608	\$246	\$26,305	\$361	\$2,567	\$67			
<b>Total Cash Income</b>	<b>\$324,953</b>	<b>\$4,447 /Cwt.Eq.</b>	<b>\$463,228</b>	<b>\$4,289 /Cwt.Eq.</b>	<b>\$362,774</b>	<b>\$4,983 /Cwt.Eq.</b>	<b>\$148,858</b>	<b>\$3,877 /Cwt.Eq.</b>			
Veterinary, Medicine	\$5,060	\$69	\$4,953	\$46	\$9,134	\$125	\$1,095	\$29			
Dairy Supplies	\$15,102	\$207	\$19,449	\$180	\$17,362	\$238	\$8,495	\$221			
Breeding Fees	\$490	\$7	\$1,271	\$12	\$198	\$3	\$0	\$0			
Feed Purchased	\$53,341	\$730	\$42,083	\$390	\$79,832	\$1,097	\$38,110	\$992			
Repairs	\$18,695	\$256	\$21,831	\$202	\$27,485	\$378	\$6,768	\$176			
Seed, Chem, Fert	\$21,443	\$293	\$35,777	\$331	\$19,519	\$268	\$9,032	\$235			
Fuel, Gas, and Oil	\$15,367	\$210	\$19,729	\$183	\$18,137	\$249	\$8,236	\$214			
Utilities	\$7,202	\$99	\$9,495	\$88	\$11,065	\$152	\$1,045	\$27			
Interest Paid -- not included	\$0		\$0	\$0.00	\$0	\$0.00	\$0	\$0.00			
Labor Hired	\$18,906	\$259	\$35,221	\$326	\$20,908	\$287	\$589	\$15			
Rent, Lease and Hire	\$34,595	\$473	\$45,602	\$422	\$45,648	\$627	\$12,534	\$326			
Property Taxes	\$4,993	\$68	\$8,465	\$78	\$3,961	\$54	\$2,553	\$66			
Farm Insurance	\$5,020	\$69	\$10,510	\$97	\$3,638	\$50	\$912	\$24			
Other Cash Expense	\$11,826	\$162	\$11,000	\$102	\$12,999	\$179	\$11,478	\$299			
<b>Total Cash Expense</b>	<b>\$212,040</b>	<b>\$2,902</b>	<b>\$265,386</b>	<b>\$2,457</b>	<b>\$269,886</b>	<b>\$3,707</b>	<b>\$100,847</b>	<b>\$2,626</b>			
<b>Net Cash Income</b>	<b>\$112,914</b>	<b>\$1,545</b>	<b>\$197,841</b>	<b>\$1,832</b>	<b>\$92,888</b>	<b>\$1,276</b>	<b>\$48,011</b>	<b>\$1,250</b>			
Inventory Change	\$7,418	\$102	\$19,147	\$177	-\$1,161	-\$16	\$4,268	\$111			
<b>Net Farm Income</b>	<b>\$120,332</b>	<b>\$1,647</b>	<b>\$216,989</b>	<b>\$2,009</b>	<b>\$91,727</b>	<b>\$1,260</b>	<b>\$52,280</b>	<b>\$1,361</b>			
Equity@	\$47,177	\$646	\$77,633	\$719	\$36,958	\$508	\$26,940	\$702			
<b>Return to Labor</b>	<b>\$73,155</b>	<b>\$1,001</b>	<b>\$139,356</b>	<b>\$1,290</b>	<b>\$54,769</b>	<b>\$752</b>	<b>\$25,340</b>	<b>\$660</b>			
<b>Inventory Adjustments--Feed</b>	<b>\$13,607</b>	<b>\$186</b>	<b>\$29,640</b>	<b>\$274</b>	<b>\$3,434</b>	<b>\$47</b>	<b>\$7,748</b>	<b>\$202</b>			
Supplies and Other	\$1,186	\$16	\$2,786	\$26	\$252	\$3	\$522	\$14			
Breeding Livestock	\$5,703	\$78	\$6,900	\$64	\$5,570	\$77	\$4,640	\$121			
<b>Income Change</b>	<b>\$20,497</b>	<b>\$281</b>	<b>\$39,326</b>	<b>\$364</b>	<b>\$9,256</b>	<b>\$127</b>	<b>\$12,910</b>	<b>\$336</b>			
Prepaid Expenses	-\$133	-\$2	-\$1,042	-\$10	\$644	\$9	\$0	\$0			
Accounts Payable	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Machinery & Equipment	\$12,198	\$167	\$26,489	\$245	\$10,539	\$145	-\$432	-\$11			
Land and Buildings	-\$2,991	-\$41	-\$3,995	-\$37	-\$2,200	-\$30	-\$2,779	-\$72			
Other Adjustments	\$688	\$9	\$1,570	\$15	\$360	\$5	\$134	\$4			
<b>Expense Change</b>	<b>-\$9,763</b>	<b>-\$134</b>	<b>-\$23,022</b>	<b>-\$213</b>	<b>-\$9,343</b>	<b>-\$128</b>	<b>\$3,077</b>	<b>\$80</b>			
Capital Purchases Minus Sales Adj.	\$22,841	\$313	\$43,200	\$400	\$19,760	\$271	\$5,564	\$145			
Depreciation COST	\$39,666	\$543	\$56,608	\$524	\$34,748	\$477	\$27,642	\$720			
Depreciation FM Value	\$12,842	\$176	\$19,160	\$177	\$10,551	\$145	\$8,816	\$230			
Unpaid Labor Cost	\$48,267	\$661	\$49,000	\$454	\$55,200	\$758	\$40,600	\$1,057			
Unpaid Labor Hours	4,027	55	4,140	38	4,380	60	3,560	93			
Labor Full Time Equivalent	1.98		2.55		2.19		1.19				
<b>Labor Earnings Per Hour</b>	<b>\$19.49</b>		<b>\$38.78</b>		<b>\$12.41</b>		<b>\$7.28</b>				
Gross Income per Cwt. Eq.	\$31.57		\$31.47		\$33.12		\$30.13				
Gross Expense per Cwt. Eq.	\$30.94		\$26.76		\$32.95		\$33.09				
<b>Net Income per cwt.</b>	<b>\$0.63</b>		<b>\$4.71</b>		<b>\$0.17</b>		<b>-\$2.97</b>				

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Organic Dairy Farms 2014 Iowa	/Cow		/Cow		/Cow		/Cow	
<b>Cash Income--</b>	\$324,953	\$4,447	\$463,228	\$4,289	\$362,774	\$4,983	\$148,858	\$3,877
Adjusted Income	\$20,497	\$281	\$39,326	\$364	\$9,256	\$127	\$12,910	\$336
Total Income	\$345,450	\$4,728	\$502,553	\$4,653	\$372,030	\$5,110	\$161,768	\$4,213
<b>Cash Costs</b>	\$212,040	\$2,902	\$265,386	\$2,457	\$269,886	\$3,707	\$100,847	\$2,626
Adjusted Costs	\$13,079	\$179	\$20,178	\$187	\$10,417	\$143	\$8,641	\$225
Overhead Costs	\$95,443	\$1,306	\$126,633	\$1,173	\$92,158	\$1,266	\$67,540	\$1,759
Total Costs	\$320,562	\$4,387	\$412,198	\$3,817	\$372,461	\$5,116	\$177,028	\$4,610
<b>RETURN OVER COSTS</b>	\$24,888	\$341	\$90,356	\$837	-\$431	-\$6	-\$15,260	-\$397
Adj. Gross Return per FTE Labor.....	\$161,706		\$190,791		\$154,313		\$140,014	
Return to All Labor per FTE Labor.....	\$40,237		\$62,684		\$35,778		\$22,251	
<b>Number of Cows per FTE Labor.....</b>	<b>36</b>		<b>43</b>		<b>33</b>		<b>33</b>	
Cwts. of Milk Sold per FTE Labor.....	4,042		4,566		3,897		3,664	
Pounds of Milk Sold per Cow.....	11,658		11,169		11,852		11,952	
Productive Crop Acres per Cow.....	3.9		4.01		3.39		4.37	
Capital Cost per Cow.....	\$862		\$929		\$598		\$1,058	
All Labor Costs per Cow.....	\$1,087		\$807		\$1,093		\$1,361	
Fixed Cost per Cow (DIRTI)	\$1,208		\$1,292		\$988		\$1,343	
Capital Invested per Cow.....	\$15,656		\$16,652		\$10,716		\$19,599	
Net Farm Income per Crop Acre.....	\$451		\$496		\$431		\$425	
Lbs. Milk Produced per Crop Acre.....	3,262		2,766		3,606		3,413	
Adj. Gross Cash Income/Crop Acre.....	\$1,297		\$1,158		\$1,427		\$1,305	
Machinery Investment/Crop Acre	\$595		\$454		\$652		\$679	
Fuel, Gas and Oil Cost/Crop Acre.....	\$60		\$49		\$66		\$66	
Repair Cost per Crop Acre.....	\$66		\$48		\$92		\$59	
Fert/Chem/Seed Cost/Crop Acre.....	<b>\$82</b>		<b>\$91</b>		<b>\$84</b>		<b>\$71</b>	
Livestock over Total Investment %	17%		14.24%		24.09%		12.44%	
Cash Exp./Cash Inc.w/o Labor&Int.....	60%		49.88%		64.31%		67.11%	
All Labor as Percent of Total Costs.....	23%		21.20%		24.23%		23.90%	
Fixed Cost as Percent of Total Cost.....	27%		34.83%		21.55%		25.66%	
**Net Farm Income From Operations	\$120,332		\$216,989		\$91,727		\$52,280	
**Rate of Return on Assets.....	<b>4.70%</b>		<b>7.94%</b>		<b>4.35%</b>		<b>1.81%</b>	
**Rate of Return on Equity.....	4.70%		7.94%		4.35%		1.81%	
**Operating Profit Margin.....	<b>17.01%</b>		<b>32.39%</b>		<b>11.44%</b>		<b>7.18%</b>	
**Asset Turnover Ratio.....	<b>34.04%</b>		<b>27.37%</b>		<b>50.81%</b>		<b>23.95%</b>	
**Operating Expense Ratio.....	59.80%		51.97%		65.52%		61.91%	
**Depreciation Expense Ratio.....	3.67%		3.53%		2.38%		5.08%	
**Net Farm Income Ratio.....	36.53%		44.40%		32.00%		33.20%	
Dairy TRANS Profit Status is.....	<b>Average</b>		<b>Suberb/Good</b>		<b>Average</b>		<b>Fair/Poor</b>	
Dairy TRANS Performance Rating	<b>50.27%</b>		<b>71.80%</b>		<b>47.60%</b>		<b>31.40%</b>	

by Larry Tranel, Dairy Field Specialist, Iowa State University Extension

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Thanks also to Wade Miller, Joe Klein and Gerry Cohn and Organic Valley Cooperative for their assistance in soliciting farmer participation and funding costs of collecting and

analyzing data. Note, not all of the organic farms were Organic Valley producers

For more information visit the ISU Dairy Team at:

[www.extension.iastate.edu/dairyteam](http://www.extension.iastate.edu/dairyteam) or  
[www.extension.iastate.edu/dubuque/dairy](http://www.extension.iastate.edu/dubuque/dairy)

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