

# 2007 FINANCIAL BENCHMARKS on Selected WISCONSIN DAIRY FARMS

By Ken Bolton and Jenny Vanderlin <sup>1</sup>

June 2009

## Introduction

Mainly due to good milk prices in 2007, Net Farm Income from Operation (NFIFO) was higher than it had been in several years. In this study of 544 dairy farms, NFIFO averaged \$139,749 per farm while the NFIFO per cow averaged \$937. This is 170 percent of the NFIFO earned per cow in 2006 (\$561) and approximately \$128 more than the amount earned in 2005. NFIFO is the measure used to report profitability performance in this paper. NFIFO reflects profitability for a 'typical' year and indicates the returns to unpaid labor and management and unpaid capital.

Figure 1

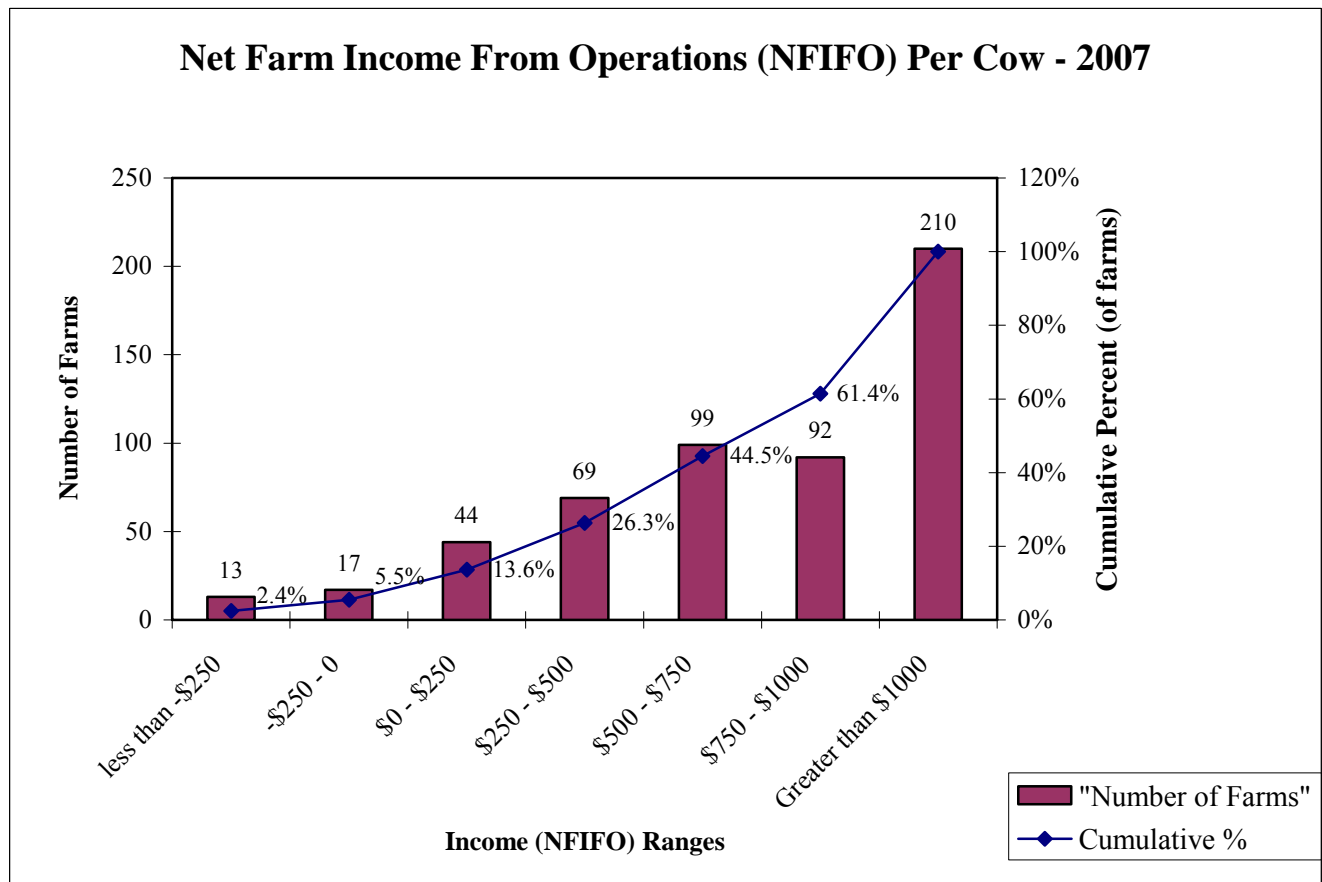


Figure 1 shows a wide range of NFIFO per cow in 2007. In 2007, less than 6% (5.5%) of farms showed a negative NFIFO per cow compared to 16% in 2006 and 11% in 2005. In 2007, 69 farms had NFIFO per cow between \$250 and \$500 and 210 had NFIFO per cow of greater than \$1,000. This wide range in NFIFO per cow is not due to herd size. Both large (greater than 250 cows) and small dairy farms are found in both the negative and the 'greater than \$1,000' NFIFO per cow categories. In 2007, 38.6% had a NFIFO per cow of over \$1,000 compared to 14.4% of the farms in 2006 and 24% in 2005.

<sup>1</sup> Center for dairy Profitability, University of Wisconsin-Madison/Extension. Authors wish to thank Dr. Gary Frank for his review and editorial comments.

## Balance Sheet

Table 1 shows the assets, liabilities and equities per cow in 2007 for the average farm in the study based on the market value of assets and economic depreciation. Being a solid year financially, the cash on-hand for 2007 increased \$57 per cow. Prepaid Expenses & Purchased Inventories increased \$104 per cow (over 100 percent). This is to be expected in an above average financial year.

Raised Feed Inventories increased by \$48 per cow, which in percentage terms is 6.4 percent. Overall, Current Assets increased by approximately \$222 from the beginning to the end of 2007.

Non-Current Assets increased by \$579 per cow to \$9,942 at the end of 2007. All Non-Current Assets except Raised Breeding Livestock have basis. Basis is defined as the purchase price minus the accumulated depreciation on a specific asset (Note: when you sell an asset you only pay taxes on the sale income in excess of the basis). Purchased Breeding Stock exhibited a very small decline while all other Non-Current Assets in this study had modest gains with Buildings (\$192 per cow) having the largest gain.

Total Farm Liabilities increased \$100 to \$3,539 per cow by the end of 2007. Note: this Balance Sheet does not include Contingent Liabilities. Contingent Liabilities are selling costs and taxes that would occur if the farm business was sold. In a different analysis of the data, Contingent Liabilities are shown to be approximately \$1,300 per cow.

A “Statement of Equities” is not calculated on all Balance Sheets. The Statement of Equities splits the farm manager’s equity into three Farm categories: Contributed Capital, Retained Earnings, Valuation Adjustment (Farm Equities) and a fourth category of Non-Farm Equities. Most Balance Sheets only split the equity into two categories, farm and non-farm.

The three Farm Equity categories assist in understanding the factors underlying the change in equity.

**Contributed Capital** is startup capital plus any non-farm money that was added in the years since startup. The “Change” column is the change that occurred between the beginning and end of the year.

**Retained Earnings** are the General Accepted Accounting Principles (GAAP) dollars that the business has earned and not paid to owners or others but “retained” in the business. As a matter of convention, all current assets and the value of raised breeding livestock are included in retained earnings. For non-agricultural businesses, this is the key variable in determining their potential.

**Valuation Adjustment** is the change (increase or decrease) in the market value for non-depreciable assets plus the difference between the market value of depreciable assets and their basis minus contingent liabilities. A farm that has most of its change in equity in the “Valuation Adjustment” category is not changing its equity by “profitable farming” but rather by wise investing or creative accounting. Non-farm businesses do not calculate a valuation adjustment because GAAP does not recognize the gain on in the value of an asset until it after it is sold and the selling costs and taxes are paid.

The Statement of Equities for 2007 shows an increase of \$776.81 per cow in farm equity. The three categories of farm equity each increased in 2007: Contributed Capital increased by \$15.79, Retained Earnings by \$435.50 (the highest in the last 10 years), and Valuation Adjustment by 229.86 per cow. Non-Farm Equity increased by \$77.65.

## Table 1 - 2007 Balance Sheet (\$/Cow)

Report Basis: per Head

Current Assets	<u>Beg. Dollars</u>	2007	<u>End Dollars</u>	<u>Cost Basis</u>	
Cash Accounts	140.60		197.33		
Prepaid Expenses & Purchased Inventories	96.25		200.02		
Raised Feed Inventories	710.35		758.23		
Basis in Resale Livestock Purchased	0.47		0.32		
Accounts Receivable	1.95		14.17		
Market Livestock & Etc.	2.31		2.21		
<b>Total Current Assets</b>	<b>951.93</b>		<b>1,172.27</b>		
<b>Non-Current Assets</b>				<b>Beg. Dollars</b>	<b>End Dollars</b>
Raised Breeding Livestock	2,238.67		2,369.73		
Purchased Breeding Livestock	532.80		532.27	363.06	338.96
Machinery & Equipment	1,447.58		1,565.96	636.61	655.19
Buildings	1,962.62		2,154.78	1,468.76	1,576.11
Land & House	2,966.73		3,088.83	1,011.19	1,108.00
Other Non-Current Assets	214.80		230.44	167.30	186.56
<b>Total Non-Current Assets</b>	<b>9,363.19</b>		<b>9,942.01</b>	<b>3,646.93</b>	<b>3,864.82</b>
<b>Total Farm Assets</b>	<b>10,315.12</b>		<b>11,114.28</b>		
<b>Current Liabilities</b>					
Accounts Payable	44.70		34.50		
Current Portion of Non-Current Liabilities	120.92		126.03		
Other Current Liabilities	131.37		160.81		
<b>Total Current Liabilities</b>	<b>296.99</b>		<b>321.35</b>		
<b>Non-Current Liabilities</b>					
Intermediate Liabilities	1,200.75		1,173.10		
Long-Term Liabilities	1,941.65		2,044.94		
Contingent Liabilities	0.00		0.00		
<b>Total Non-Current Liabilities</b>	<b>3,142.40</b>		<b>3,218.03</b>		
<b>Total Farm Liabilities</b>	<b>3,439.38</b>		<b>3,539.38</b>		
Non-Farm Assets	1,347.06		1,440.78		
Non-Farm Liabilities	44.11		60.18		
	<u>Beginning</u>	<u>Ending</u>	<u>Change</u>		
Contributed Capital	17.53	33.32	15.79		
Retained Earnings	3,380.62	3,834.12	453.50		
Valuation Adjustment	3,477.59	3,707.46	229.87		
<b>Total Farm Equities</b>	<b>6,875.74</b>	<b>7,574.90</b>	<b>699.16</b>		
Non-Farm Equities	1,302.95	1,380.60	77.65		
<b>Total Equities</b>	<b>8,178.69</b>	<b>8,955.50</b>	<b>776.81</b>		
<b>Total Farms</b>	<b>544</b>				

## Financial Measures

The average Rate of Return on Assets (ROROA) was 8.39 percent in 2007. The average Rate of Return on Assets was 3.25% in 2006, 6.77% in 2005, 7.85% in 2004. These are just the averages in these years; the range in ROROA is equally important. The number of farms in selected ranges and the cumulative percentage of the ranges are shown in Figure 2.

**Figure 2**

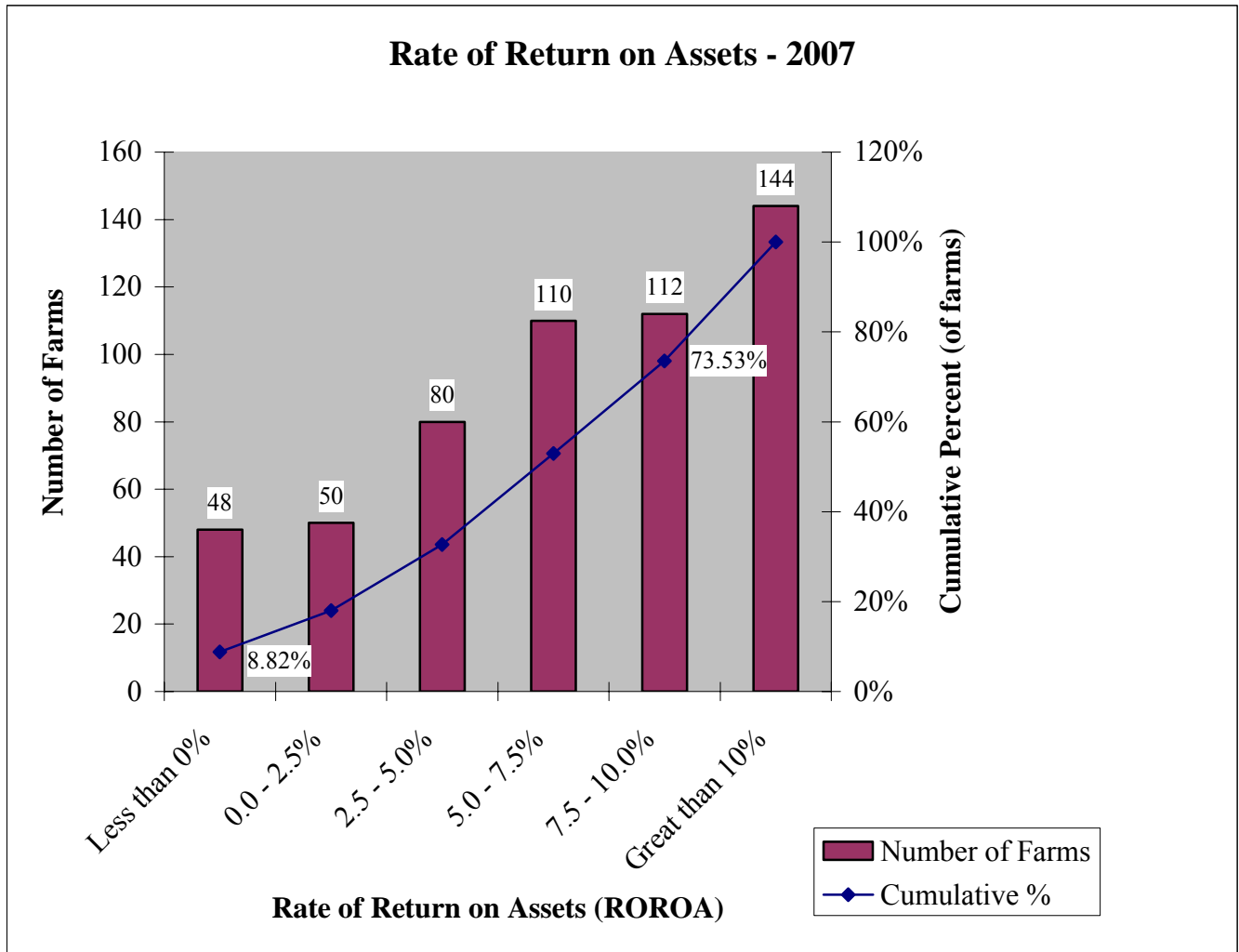


Figure 2 shows that in 2007, 8.82% (48) of the farms in this study had a negative ROROA. This is over the 8 percent of farms that had a negative NFIFO per cow. This is expected as the value of unpaid labor and management is subtracted from farm incomes before ROROA is calculated.

Looking on the positive side, 91.2 percent of the farms had positive ROROA in 2007 and 26.5 percent had ROROA in excess of 10 percent. These results were obtained by calculating ROROA based on the market value of assets and economic depreciation.

If the ROROA were calculated the way a main street business would calculate it (using GAAP methods) the average 2007 ROROA would have been 9.84 percent. GAAP calculates ROROA based on the “cost value” of assets and tax depreciation claimed. The economic depreciation claimed in 2007 was \$435 per cow and the tax depreciation claimed in 2007 was \$633 per cow.

## Table 2 - Financial Measures per Cow – 2007 – 2005

Report Basis: per Head

These Financial Measures Were Calculated Using the Market Value of Assets and Economic Depreciation				
		<u>2007</u>	<u>2006</u>	<u>2005</u>
	Number of Farms	544	568	618
<b>Profitability</b>				
	Net Farm Income From Operations	\$937.47	\$353.17	\$714.72
	Net Farm Income	\$950.68	\$368.34	\$719.30
	Rate of Return on Assets (ROROA)	8.39%	3.25%	6.77%
	Economic Depreciation Claimed	\$434.99	\$415.08	\$438.80
	Rate of Return on Equity	0.0918	0.0148	0.0745
	Net Profit Margin	0.1853	0.081	0.1511
<b>Financial Efficiency Ratios (These ratios are calculated using Total Farm Income, not Value of Farm Production.)</b>				
	Asset Turnover Ratio	0.453	\$0.40	\$0.45
Note: Some methods of calculating ratios combine the Basic Cost and Wages Paid Ratios into a single ratio (Operating Cost Ratio).	Basic Cost Ratio	0.587	0.641	0.602
	Wages Paid Ratio	0.099	0.125	0.112
	Interest Paid Ratio	0.049	0.057	0.044
	Depreciation Ratio	0.072	0.085	0.076
	Net Farm Income from Operations Ratio	0.193	0.091	0.166
<b>Repayment Capacity</b>				
	Capital Replacement & Debt Repayment Capacity	\$1,147.82	\$547.80	\$780.25
	Coverage Margin	\$827.46	\$222.40	\$581.85
	Term Debt Coverage Ratio	\$3.88	\$2.04	\$3.00
<b>Liquidity</b>				
	Net Cash Income	\$1,091.42	\$669.48	\$980.62
	Working Capital	\$850.92	\$541.32	\$665.91
	Current Ratio	\$3.65	\$2.58	\$3.25
<b>Solvency (Assets at Market Value)</b>				
	Beginning Total Farm Assets	\$10,315.12	\$9,469.68	\$9,290.67
	Beginning Total Farm Liabilities	\$3,439.38	\$3,309.27	\$3,269.08
	Beginning Farm Net Worth	\$6,875.74	\$6,160.41	\$6,021.60
	Farm Debt to Asset Ratio - Beginning of Year	\$0.33	\$0.35	\$0.35
	Ending Total Farm Assets	\$11,114.28	\$9,832.62	\$9,962.83
	Ending Total Farm Liabilities	\$3,539.38	\$3,600.14	\$3,536.17
	Ending Farm Net Worth	\$7,574.90	\$6,232.48	\$6,426.67
	Year Ending Farm Debt to Asset Ratio	\$0.32	\$0.37	\$0.36
	Total Change in Farm Net Worth	\$699.16	\$72.07	\$405.07

\* Basic Cost and Wages Paid ratios are combined into an Operating Cost ratio on some financial analysis reports.

There are two methods used by AgFA<sup>2</sup> to calculate financial measures. The first method (the GAAP method), used by most businesses, bases the calculations on the cost basis of assets (initial cost minus accumulated depreciation) and the tax depreciation claimed by the business. This method will be called “Cost.” The second method bases the calculations on the market basis of assets (an estimate of their value if sold today minus the selling costs and taxes) and economic depreciation. The method will be called “Market.” There is a third method that uses market value of assets and tax depreciation however AgFA<sup>2</sup> does not use this in any of the calculations.

Table 2 shows that the Rate of Return on Assets (ROROA) is 8.39% in 2007 using the Economic method. Using the cost method, ROROA is 9.84%. Since the formula for calculation in both methods is the same (return to assets ‘divided by’ value of assets) this difference is mainly due to the value of the assets. The cost value of an asset is generally much less than the market value of an asset. Example: a 1980 JD 4400 tractor will likely have a zero cost value but a five digit market value.

The Rate of Return on Equity in the 2007 and 2006 years demonstrates the leverage principle. This principle states that a business is using credit wisely when the ROROA exceeds the cost of credit. In the best case a business will produce an ROROE equal to or exceeding the ROROA. In 2007 the ROROA (8.39%) was more than the interest rate of 6.39% and the Rate of Return on Equity (9.18%) was higher than the ROROA. In 2006, the ROROA (3.25%) was less than the interest rate and the Rate of Return to Equity (1.48%) was lower than the ROROA.

The Asset Turnover Ratio increased in 2007 to 0.453 from .401 in 2006.. This ratio is the dollars of income the farm has generated for each dollar of asset value. The goal is greater than 0.60 using Cost asset values and greater than 0.40 for Market asset values. The rest of the Financial Efficiency Ratios (basic cost, wages paid, interest paid, depreciation and NFIFO) must sum to one for each method (Cost and Market).

In 2007, the Interest Paid (0.049) and the Depreciation Ratios (0.108) were in the normal range (0.06 to 0.07 for interest paid and 0.09 to 0.11 for depreciation). The Basic Cost Ratio of 0.59 was just under the goal of  $\leq 0.60$ . The Wages and Benefits Ratio (0.099 in 2007) was lower than the previous five years which had hovered around 0.12.

The previous paragraph outlines reasons why the Net Farm Income from Operations Ratio (0.153 – Cost; 0.193 – Market) was one of the highest since we started collecting farm financial data in 1995. The goal for this value is 0.125 or more. On a market basis the highest NFIFO values were in 1995 and 1998 at .243.

Repayment Capacity measures include non-farm incomes. The Coverage Margin is the dollars available after adding depreciation to and subtracting family living from Net Farm Income plus non-farm incomes. This value should be higher than the tax depreciation claimed (\$435). The Term Debt Coverage Ratio was 3.88 and should be greater than 1.5. Therefore, it appears that during the favorable price year of 2007, the average farm manager was able to more than keep current on long-term debts.

The Liquidity measures were higher than normal at the end of 2007. In addition to the Solvency measures discussed earlier, there is also a Debt to Asset ratio. The Debt to Asset ratio in 2007 was 0.318 (lowest in the last 5 years) and down from 0.366 in 2006 and 0.355 to 2005.

---

<sup>2</sup> AgFA<sup>2</sup> (Agriculture Financial Advisor). <http://cdp.wisc.edu/agfa.htm>

## Summary

There is normally a wide range in both Net Farm Income from Operations and Rate of Return on Assets. The 2007-year was no different. NFIFO per cow averaged \$937 using the Market method, but ranged from 13 herds (2.39%) registering a **minus** \$250 per cow or more, to 80 herds (14.7%) earning equal to or greater than a **positive** \$1,500 per cow. The same was true of ROROA. It averaged 8.39 percent while 8.2 percent of the farms had a negative ROROA, 24.5 percent of the farms had a ROROA in excess of 10 percent.

The change in retained earnings in The Statement of Equities was \$453.50 per cow in 2007 as compared to a negative \$16.15 in 2006. It was \$251.05 per cow in 2005.

More details on the cost of production on the 544 farms studied in 2007 are published in the paper titled "Milk Production Costs in 2007 on Selected Wisconsin Dairy Farms." This paper provides cost of production analysis per farm, per cow and per hundredweight equivalent. It is available on the Center for Dairy Profitability's website at <http://cdp.wisc.edu>.