2002 FINANCIAL BENCHMARKS on Selected WISCONSIN DAIRY FARMS

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Introduction

Mainly due to low milk prices in 2002, Net Farm Income from Operation (NFIFO) was lower than it had been in several years. In this study of 581 dairy farms, NFIFO averaged $26,963 per farm while the NFIFO per cow averaged $230. Net Farm Income (NFI) was $30,065 per farm and $257 per cow in 2002. This is only 50 percent of the NFI earned per cow in 2001 ($511) and approximately $120 less than the amount earned in 2000. This paper presents profitability benchmarks plus benchmarks for liquidity, financial efficiency, and solvency and repayment capacity. NFIFO is the basis for the profitability benchmarks. **NFIFO is not the farm's profit.** It is the sum of the return to owner-operator-manager's (and all other) unpaid labor and management, the return to their equity capital and profit. When calculating opportunity costs the following criteria were used: $9.75 per hour for unpaid labor, $10.00 per hour for unpaid management and five percent opportunity interest on the fair market value of equity capital.

Figure 1

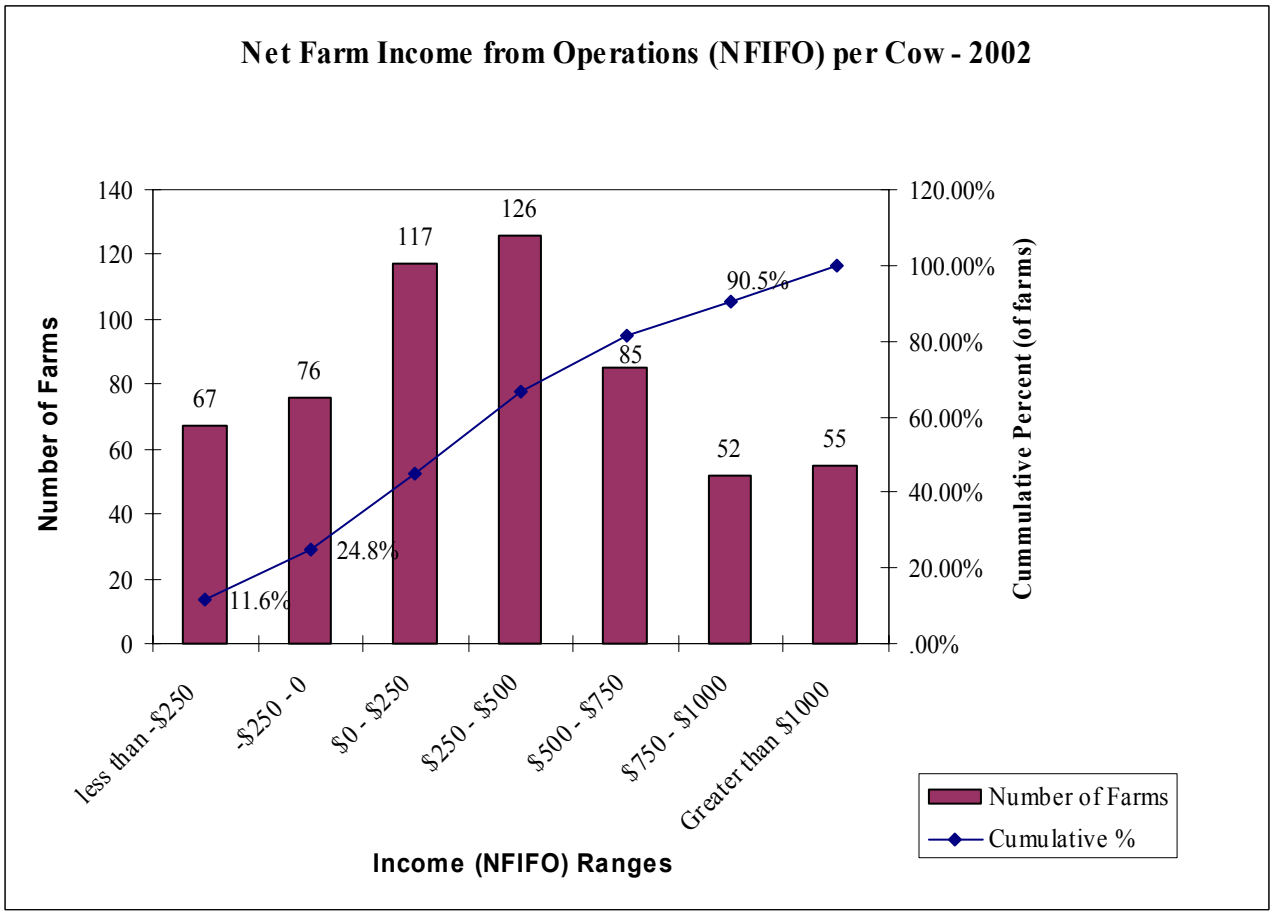

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Figure 1 shows a wide range of NFIFO per cow in 2002. In 2002, one quarter (24.8%) of farms showed a negative NFIFO per cow compared to 19.8% in 2001 and only 4.5% in 1998. In 2002, 126 farms had NFIFO per cow between $250 and $500 and 55 had NFIFO 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 2002, 9.5% had a NFIFO per cow of over $1,000 compared to 15% of the farms in 2001 and 29.5% in 1998.

Table 1 - 2002 Balance Sheet ($/Cow)

Report Basis: per Head

	Beg. Dollars	2002	End Dollars	Cost Basis	
Current Assets					
Cash Accounts	128.68		137.69		
Prepaid Expenses & Purchased Inventories	116.87		77.24		
Raised Feed Inventories	571.63		561.26		
Basis in Resale Livestock Purchased	3.65		1.14		
Accounts Receivable	4.69		4.44		
Market Livestock & Etc.	5.64		5.93		
Total Current Assets	**831.16**		**787.70**		
Non-Current Assets				**Beg. Dollars**	**End Dollars**
Raised Breeding Livestock	1,856.07		1,925.73		
Purchased Breeding Livestock	435.79		475.33	350.41	374.89
Machinery & Equipment	1,442.11		1,494.71	845.71	892.06
Buildings	1,531.57		1,626.05	1,218.85	1,291.73
Land & House	2,367.74		2,427.65	1,035.75	1,121.43
Other Non-Current Assets	180.94		199.32	101.00	127.20
Total Non-Current Assets	**7,814.22**		**8,148.79**	**3,551.72**	**3,807.32**
Total Farm Assets	**8,645.39**		**8,936.49**		
Current Liabilities					
Accounts Payable	30.14		56.92		
Current Portion of Non-Current Liabilities	176.19		189.18		
Other Current Liabilities	93.35		106.09		
Total Current Liabilities	**299.68**		**352.19**		
Non-Current Liabilities					
Intermediate Liabilities	1,119.79		1,231.47		
Long-Term Liabilities	1,522.72		1,659.86		
Contingent Liabilities	0.00		0.00		
Total Non-Current Liabilities	**2,642.51**		**2,891.33**		
Total Farm Liabilities	**2,942.19**		**3,243.51**		
Non-Farm Assets	520.51		507.96		
Non-Farm Liabilities	24.94		28.50		

Statement of Equities (Net Worth)

		Beginning	Ending	Cha
Contributed Capital		6.92	8.58	1.66
Retained Earnings	1	3,289.84	3,268.66	-21.18
Valuation Adjustment		2,406.43	2,415.74	9.31
Total Farm Equities		5,703.19	5,692.98	-10.21
Non-Farm Equities		495.57	479.46	-16.11
Total Equities		**6,198.77**	**6,172.44**	**-26.32**

1 All current assets and raised breeding livestock are included in retained earnings.

Balance Sheet

Table 1 shows the assets, liabilities and equities per cow in 2002 for the average farm in the study. Even though 2002 was not a good year financially, the cash on-hand increased. Prepaid Expenses & Purchased Inventories were down almost $40 per cow (over 30 percent). This is to be expected in a below average financial year.

Raised Feed Inventories slipped by at $10 per cow, which in percentage terms is less than 2 percent. Overall, Current Assets fell by approximately $44 from the beginning to the end of 2002.

Non-Current Assets increased by $335 per cow to $8,149 at the end of 2002. 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). All of the Non-Current Assets in this study had small gains with Land & House ($86 per cow) having the largest gain.

Total Farm Liabilities increased by over $300 to $3,244 per cow by the end of 2002. 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 four categories: Contributed Capital, Retained Earnings, Valuation Adjustment (Farm Equities) and Non-Farm Equities. Most Balance Sheets only split the equity into two categories, farm and non-farm.

Separating Farm Equity into 3 categories assists 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 paid.

The Statement of Equities of 2002 shows a decrease of $10.21 per cow in farm equity. The three components of farm equity are: Contributed Capital which increased by $1.66, Retained Earnings which decreased by $21.18 and Valuation Adjustment which increased by $9.31 per cow. Retained Earnings increased by $367 per cow in 1998. It was the best year in the last 10.

Financial Measures

The average Rate of Return on Assets (ROROA) was 2.17 percent in 2002. This is the lowest ROROA in several years. The average Rate of Return on Assets was 5.57 in 2001 and 4.24 in 2000. It was 7.56, 9.20, 5.42, 5.36, and 5.57 percent in 1999, 1998, 1997, 1996 and 1995, respectively. However, these are just the averages and 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

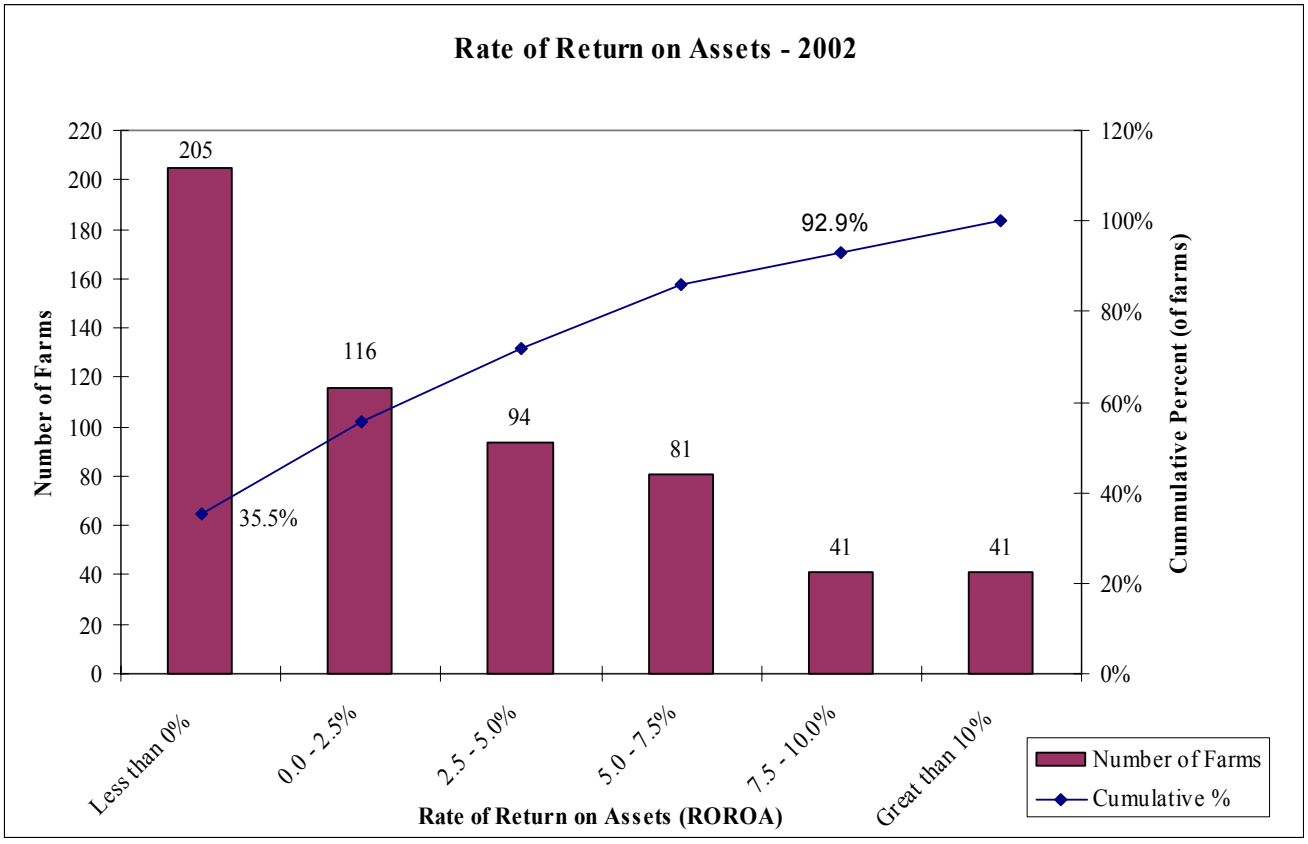

Figure 2 shows that in 2002, 35.5 percent of the farms in this study had a negative ROROA. This is larger than the 25 percent of farms that had a negative NFIFO per cow. This is expected as the value of unpaid labor and management is subtracted from farm incomes before ROROA is calculated.

Looking on the positive side, 64.5 percent of the farms had positive ROROA in 2002 and 7.1 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 ROROA would have been 4.00 percent. GAAP calculates ROROA based on the "cost value" of assets and tax depreciation claimed. The economic depreciation claimed in 2002 was $398 per cow and the tax depreciation claimed in 2002 was $425 per cow.

Table 2 - Financial Measures per Cow – 2002 - 2000

Report Basis: per Head

Number of Farms	581	708	743
Profitability (Assets at Cost and Cost (Tax) Depreciation)	**2002**	**2001**	**2000**
Net Farm Income From Operations	$204.01	$456.49	$348.02
Net Farm Income	$230.51	$477.42	$367.43
Rate of Return on Assets (ROROA)	4.00%	10.01%	7.91%
Cost (Tax) Depreciation Claimed	*$424.59*	*$449.71*	*$394.00*
Rate of Return on Equity	-1.69 %	16.15 %	9.07 %
Net Profit Margin	4.99 %	12.38 %	10.25 %
Profitability (Assets at Market Value and Economic Depreciation)			
Net Farm Income From Operations	$230.15	$489.97	$356.47
Net Farm Income	$256.63	$510.90	$375.88
Rate of Return on Assets (ROROA)	2.17 %	5.65 %	4.24 %
Economic Depreciation Claimed	*$398.45*	*$416.22*	*$385.55*
Rate of Return on Equity	0.05 %	4.82 %	2.34 %
Net Profit Margin	5.79 %	13.31 %	10.52 %
Financial Efficiency Ratios (These ratios are calculated using Total Farm Income, not Value of Farm Production.)			
Asset Turnover (Cost and Tax)	0.733	0.828	0.793
Basic Cost (Cost and Tax)	0.655	0.605	0.613
Wages Paid	0.125	0.111	0.113
Interest Paid	0.057	0.058	0.068
Cost (Tax) Depreciation	0.100	0.099	0.097
Net Farm Income from Operations (Cost and Tax)	0.062	0.127	0.109
Asset Turnover (Market Value and Economic)	0.374	0.425	0.403
Basic Cost (Market Value and Economic)	0.651	0.608	0.616
Wages Paid	0.125	0.111	0.113
Interest Paid	0.057	0.058	0.068
Economic Depreciation	0.097	0.087	0.092
Net Farm Income from Operations (Market Value and Economic)	0.070	0.136	0.112
Repayment Capacity			
Capital Replacement & Debt Repayment Capacity	$372.53	$597.00	$445.94
Coverage Margin	$56.59	$294.14	$163.54
Term Debt Coverage Ratio	1.54	2.12	1.78
Liquidity			
Net Cash Income	$653.93	$860.55	$746.94
Working Capital	$435.51	$489.09	$509.48
Current Ratio	2.24	2.65	2.86
Solvency (Assets at Market Value)			
Beginning Total Farm Assets	$8,645.39	$8,306.30	$7,814.36
Beginning Total Farm Liabilities	$2,942.19	$2,805.34	$2,710.88
Ending Total Farm Assets	$8,936.49	$8,656.34	$8,018.25
Ending Total Farm Liabilities	$3,243.51	$2,961.25	$2,888.48
Ending Farm Net Worth	$5,692.98	$5,695.10	$5,129.77
Change in Farm Net Worth	-$10.21	$194.14	$26.29
Year Ending Farm Debt to Asset Ratio	0.363	0.342	0.360

* 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[@2] 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; AgFA[@] does not do any calculations using this method.

[2] AgFA[@] (Agriculture Financial Advisor). http:\\cdp.wisc.edu\agfa.htm

Table 2 shows that the Rate of Return on Assets (ROROA) is 4.00% in 2002 using the Cost method. However, the ROROA is 2.17% using the Market method. 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 2002 and 2001 years demonstrates the leverage principle. In 2002 the ROROA (4.00%) was less than the interest rate and the Rate of Return on Equity (-1.69%) was lower than the ROROA. In 2001, the ROROA (10.01%) was greater than the interest rate and the Rate of Return to Equity (16.15%) in higher than the ROROA.

The Asset Turnover Ratios decreased in 2002. This ratio is the dollars of income the farm has generated for each dollar of asset value. The goal is greater than 0.80 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. Notice that the Wages Paid and Interest Paid ratio remains the same under both calculation methods. Also, the Basic Cost ratio only changes slightly.

In 2002, the Interest Paid and the Depreciation Ratios 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 0.65 was also higher than the goal of ≤ 0.60. The Wages and Benefits Ratio (0.125 in 2002) has been increasing as more farm managers pay their workers, whether they are dependents or non-dependents. This value was only 0.083 in 1995.

The previous paragraph outlines reasons why the Net Farm Income from Operations Ratio (0.062 – Cost; 0.070 – Market) was the lowest since we started collecting farm financial data in 1992. The goal for this value is 0.125 or more. The highest it has been is 0.194 in 1998.

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 close to the depreciation claimed (425). The Term Debt Coverage Ratio should be greater than 1.5. Therefore, it appears that even in the low price year of 2002, the average farm manager was able to keep current on long-term debts.

The Liquidity measures were normal at the end of 2002. In addition to the Solvency measures discussed earlier, there is also a Debt to Asset ratio. The Debt to Asset ratio in 2002 was 0.363, up 0.021 from 2001, but comparable to 2000.

Summary

There is normally a wide range in both Net Farm Income from Operation and Rate of Return on Assets. The 2002-year was no different. NFIFO per cow averaged $257 using the Market method, but ranged from less than a **minus** $250 per cow to more than a **positive** $1,000 per cow. The same was true of ROROA. It averaged 2.17 percent while 35.5 percent of the farms had a negative ROROA, 7 .1 percent of the farms had a ROROA in excess of 10 percent.

The change in retained earnings in equity was a negative $21.18 per cow in 2002. It was a positive $194 in 2001. It was $367 per cow in 1998.

More details on the cost of production on the 581 farms studied in 2002 are published in the paper titled "Milk Production Costs in 2002 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.