2001 FINANCIAL BENCHMARKS on Selected **WISCONSIN DAIRY FARMS**

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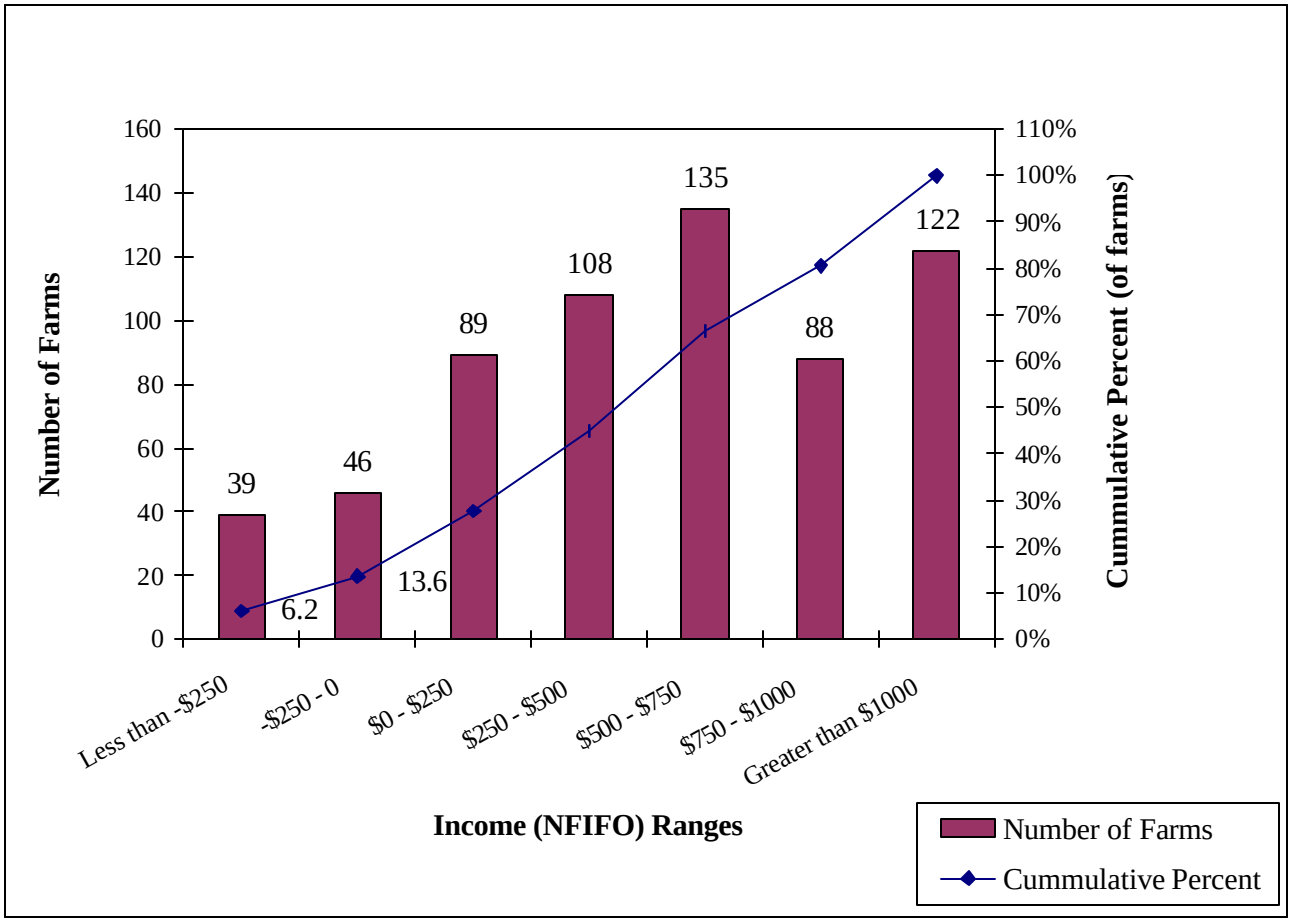
Introduction

Even though milk prices in 2001 were higher than they have been in all but one of the last 10 years[2], profit margins per cow in 2001 were only in the mid-range of the last ten years. Profit margins per cow are over $300 less than they were in 1998 when the milk price was only $0.49 higher than in 2001[3].

In this study of 627 dairy farms, Net Farm Income From Operations (NFIFO) averaged $56,284 per farm (versus $32,199 in 2000) and NFIFO per cow averaged $521 (versus $296 in 2000). This paper presents profitability benchmarks plus benchmarks for liquidity, financial efficiency, and solvency and repayment capacity. We use NFIFO as the basis for the profitability benchmarks however it is not the farm's profit.

Figure 1
Net Farm Income from Operations (NFIFO) per Cow – 2001



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[2] The U.S. average all milk prices were $13.09, $12.80, $12.97, $12.74, $14.88, $13.34, $15.43, $14.37, $12.33, and $14.94 (est.) in 1992 - 2001, respectively.

[3] Frank, Gary and Jenny Vanderlin. "Milk Production Cost in 2001 on Selected Wisconsin Dairy Farms." July 2002. (Available at http://cdp.wisc.edu)

NFIFO is the sum of the return to owner-operator-manager's (and the family's) unpaid labor and management, their equity capital and profit. *When calculating opportunity costs the following criteria were used: $9.25 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 shows a wide range of NFIFO per cow in 2001. 108 farms had NFIFO per cow between $250 and $500. 13.6 percent of the farms showed a negative NFIFO per cow compared to 19 percent in 2000. In 2001, 19.5 percent of the farms had NFIFO per cow of greater than $1000 compared to only 5 percent in 2000.

Balance Sheet

Table 1 shows the assets, liabilities and equities per cow in 2001 for the average farm in the study. The cash on hand only decreased in 2001 by a few dollars. Prepaid Expenses & Purchased Inventories were $23 higher.

Raised Feed Inventories slipped by $57 per cow, which in percentage terms is 9 percent. The total value of Current Assets decreased approximately $50 during 2001.

The market value of Non-Current Assets increased by over $350 per cow during 2001 to $8141, this is an increase of a little over $1000 from the end of 2000. The $650 ($1000 - $350) difference occurred on January 1, 2001 through adjustments in the market value of existing assets.

The market value of raised breeding livestock (per cow) increased $80 during 200, and it increased almost $300 from December 31, 2000 to January 1, 2001. In AgFA, unit prices of raised breeding livestock cannot be changed during the year, however they can be changed between years. The market value of the remaining non-current assets (equipment, machinery, buildings and land) increased approximately $280 in 2001, and they increased $350 from December 31, 2000 to January 1, 2001. (Note: Some of the $650 difference may be due to farms entering or leaving the study group.)

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 basis gains, with the "Buildings" category being the largest.

Total Farm Liabilities increased by $138 per cow to $2,968 by the end of 2001. Total Farm Liabilities per cow increased approximately $50 from December 31, 2000 to January 1, 2001. This is likely due to the slightly different mix of farms in the 2001 study. Note: this Balance Sheet does not include Contingent Liabilities. Contingent Liabilities are selling costs and taxes that would occur if the farm business were sold.

Table 1
2001 Balance Sheet ($/Cow)

	Beg. Dollars	End Dollars	Cost Basis Beg. Dollars	Cost Basis End Dollars
Current Assets				
Cash Accounts	114.25	108.26		
Prepaid Expenses & Purchased Inventories	83.51	106.75		
Raised Feed Inventories	644.34	587.04		
Basis in Resale Livestock Purchased	0.45	0.46		
Accounts Receivable	4.58	3.13		
Market Livestock & Etc.	2.65	2.90		
Total Current Assets	**849.79**	**808.55**		
Non-Current Assets				
Raised Breeding Livestock	1,870.23	1,951.92		
Purchased Breeding Livestock	421.11	422.46	314.26	317.13
Machinery & Equipment	1,379.85	1,506.37	896.87	973.89
Buildings	1,623.43	1,674.23	1,255.50	1,273.90
Land & House	2,320.84	2,386.97	1,079.35	1,176.23
Other Non-Current Assets	172.78	199.41	86.31	118.37
Total Non-Current Assets	**7,788.24**	**8,141.36**	**3,632.29**	**3,859.53**
Total Farm Assets	**8,638.03**	**8,949.91**		
Current Liabilities				
Accounts Payable	29.33	27.28		
Current Portion of Non-Current Liabilities	177.40	191.68		
Other Current Liabilities	80.13	87.31		
Total Current Liabilities	**286.86**	**306.27**		
Non-Current Liabilities				
Intermediate Liabilities	1,113.44	1,139.81		
Long-Term Liabilities	1,429.95	1,522.13		
Contingent Liabilities	0.00	0.00		
Total Non-Current Liabilities	**2,543.40**	**2,661.94**		
Total Farm Liabilities	**2,830.26**	**2,968.21**		
Non-Farm Assets	425.85	434.58		
Non-Farm Liabilities	11.95	9.56		

Statement of Equities

Table 2 is a Statement of Equities or Net Worth. It shows the farm manager's equity in four categories: Contributed Capital, Retained Earnings, Valuation Adjustment (Farm Equities) and Non-Farm Equities. Not all Balance Sheets provide a Statement of Equities, and if they do it usually is divided into two categories: farm and non-farm.

Table 2
Statement of Equities (Net Worth)

	Beginning	Ending	Change
Contributed Capital	(6.38)	(6.40)	(0.02)
Retained Earnings*	3,528.42	3,658.18	129.76
Valuation Adjustment	2,285.72	2,329.91	44.18
Total Farm Equities	5,807.77	5,981.69	173.92
Non-Farm Equities	413.91	425.02	11.11
Total Equities	**6,221.68**	**6,406.71**	**185.04**

*All current and raised breeding livestock

Farm Equity is separated into 3 categories to 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 paid.

The Statement of Equities of 2001 shows an increase of $174 in Total Farm Equities. Of this, $130 is retained earnings.

Financial Measures

The average Rate of Return on Assets (ROROA) was 5.57 percent in 2001. This is an increase from 2000 where we saw the lowest ROROA in several years. The average Rate of Return on Assets was 3.51 percent in 2000, 7.56 percent in 1999 and 9.20 percent in 1998. This year's ROROA falls more in line with the years

1995-1997 where the ROROA was 5.57, 5.36 and 5.42 respectively. These are just the averages of ROROA; ranges are equally important. Figure 2 shows the number of farms in selected ranges and the cumulative percentage of those ranges

Figure 2
Rate of Return on Assets – 2001

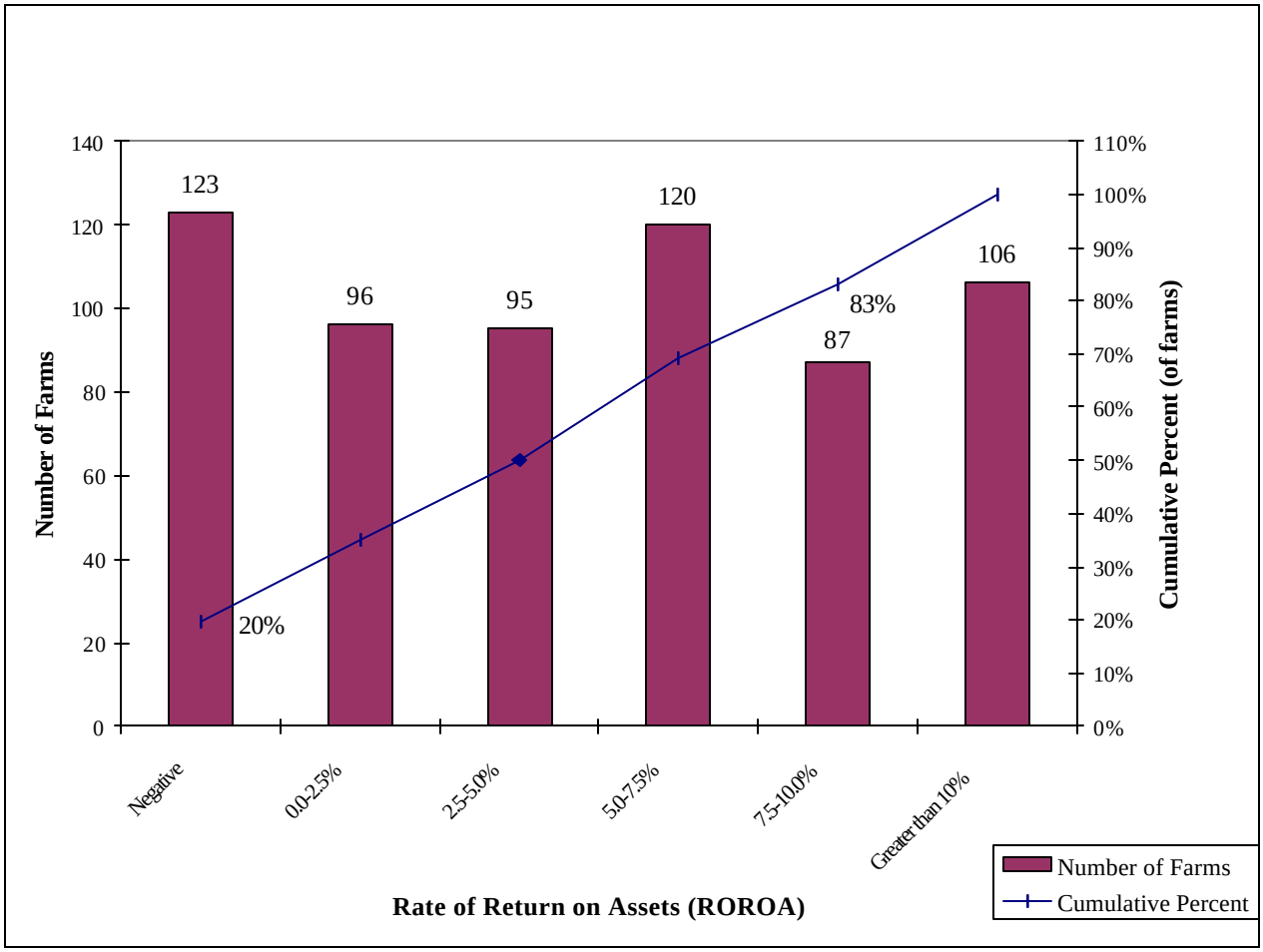

Figure 2 shows that 20 percent of the farms in the study had a negative ROROA. This is higher than the 13.6 percent of farms that had a negative NFIFO. [This is expected as the value of unpaid labor and management is subtracted from farm incomes before ROROA is calculated]

Looking on the positive side, 80 percent of the farms had positive ROROA in 2001, and 17 percent had ROROA in excess of 10 percent.

The Rate of Return on Equity (ROROE) is 4.78 percent. *This is inline with the 5 percent opportunity cost that was assigned to equity*. The Net Profit Margin is lower than the goal of 15 percent or more, but it still is acceptable at 13.66 percent. Net Profit Margin is the portion of income that can be used to service assets.

The above results were obtained by doing the calculations based on the market value of assets and economic depreciation. Net Farm Income differs from NFIFO in that it includes the sale of Capital Assets.

Table 3 shows the profitability measures calculated both with "assets at cost and cost (tax) depreciation," the GAAP method, and with "assets at market value and economic depreciation."

Table 3
Profitability Measures per Cow - 2001

Profitability (Assets at Cost and Cost (Tax) Depreciation)	
Net Farm Income From Operations	$461.92
Net Farm Income	$481.42
Rate of Return on Assets (ROROA)	9.45%
Cost (Tax) Depreciation Claimed	*$462.23*
Rate of Return on Equity	13.40 %
Net Profit Margin	12.03 %
Profitability (Assets at Market Value and Economic Depreciation)	
Net Farm Income From Operations	$520.21
Net Farm Income	$539.71
Rate of Return on Assets (ROROA)	5.57 %
Economic Depreciation Claimed	*$403.94*
Rate of Return on Equity	4.78 %
Net Profit Margin	13.66 %

If the ROROA were calculated the way a Main Street business would calculate it (using GAAP methods), the average ROROA would have been 9.45 percent, and the ROROE would be 13.4 percent. GAAP calculates ROROA based on the "cost value" of assets and tax depreciation claimed. The economic depreciation claimed in 2001 was $404 per cow, and the tax depreciation claimed in 2001 was $462 per cow.

You may wonder how the ROROA and ROROE (using GAAP) can be higher when the amount of depreciation claimed is also higher. This is because in almost all cases the "cost value" of the assets is much lower than the estimated "market value" of the assets.

Table 4 shows the remaining categories of Financial Measures. In the first category, Financial Efficiency, the Market Value Asset Turnover Ratio is 0.408. This ratio is the dollars of income the farm has generated for each dollar of assets at market value. It had been near 0.50 but has fallen in the last two years -- this would be troubling if the market value of assets (on a per cow basis) had not been increasing. If both Net Profit Margin and Asset Turnover Ratio were at their goals (15% and 0.50) the ROROA would be 7.5 percent as Net Profit Margin times Asset Turnover equal ROROA.[4]

In 2001, the Basic Cost Ratio was 0.578 versus a goal of 0.550 or less. The Wages Paid Ratio was 0.107. The Wages and Benefits Ratio 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 Interest Paid Ratio was 0.058. This is a very manageable level. It means that of each dollar of income 5.8 cents is used to pay interest.

[4] Frank, Gary. Profitability, Liquidity, Solvency, Financial Efficiency, and Repayment Capacity (The Pentagon of Financial Analysis. – Managing the Farm, Volume 25:2, May 1992.

The Cost (Tax) Depreciation Ratio is in a very healthy range (0.11 to 0.13) at 0.129. This shows that farm managers are investing sufficient funds in their businesses to keep them growing.

Table 4
Other Financial Measures per Cow - 2001

Financial Efficiency Ratios	
Asset Turnover (Cost and Tax)	0.785
Asset Turnover (Market Value and Economic)	0.408
Basic Cost (both)*	0.578
Wages Paid (both)*	0.107
Interest Paid (both)	0.058
Economic Depreciation	0.113
Net Farm Income from Operations (Market Value and Economic)	0.144
Cost (Tax) Depreciation	0.129
Net Farm Income from Operations (Cost and Tax)	0.128
Repayment Capacity	
Capital Replacement & Debt Repayment Capacity	$675.35
Coverage Margin	$372.01
Term Debt Coverage Ratio	2.31
Liquidity	
Net Cash Income	$891.98
Working Capital	$513.22
Current Ratio	2.70
Solvency (Assets at Market Value)	
Beginning Total Farm Assets	$8,638.03
Beginning Total Farm Liabilities	$2,830.26
Ending Total Farm Assets	$8,949.91
Ending Total Farm Liabilities	$2,968.21
Ending Farm Net Worth	$5,981.69
Change in Farm Net Worth	$173.92
Year Ending Farm Debt to Asset Ratio	0.332
Year Ending Farm Equity to Asset Ratio	0.668

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

The Repayment Capacity numbers show the ability of farms to service debt. These measures include non-farm income. The Coverage Margin is the dollars available after adding depreciation to and subtracting family living from Net Farm Income plus non-farm income. The Term Debt Coverage Ratio should be greater than 1.25 with a Term Debt Coverage Ratio of 2.00 or more being considered very strong. This measure combined with a Coverage Margin of $372 per cow, versus a goal of $250 or more per cow, shows that the average farm handled its current debt load easily and most farm managers were able to keep current on their long-term debts.

In the Liquidity section the Current Ratio is more than twice the goal of 1.25 at 2.70. In addition, Net Cash Income and Working Capital are at very acceptable levels.

The Solvency section is a summary of Table 1 plus the Debt to Asset and Equity to Asset Ratios. A Debt to Asset Ratio of less than 0.300 is preferred. However, higher ratios are workable when the interest rates are low and milk price is at the upper end of its range.

Summary

There is normally a wide range in both "Net Farm Income from Operation Per Cow" and "Rate of Return on Assets." The 2001-year was no different. NFIFO per cow averaged $520 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 5.57 percent while 20 percent of the farms had a negative ROROA and 16 percent of the farms had a ROROA in excess of 10 percent. These values were calculated using traditional formulas, the market value of assets and economic depreciation.

The retained earnings increase in equity was $174 per cow in 2001. This is an increase of $130 per cow over the increase in equity in 2000.

The average dairy farm in Wisconsin did very well financially in 2001. However, not all dairy farms are average and there are still a number of dairy businesses that were financially stressed in 2001. In fact, any of the 85 dairy farms with negative NFIFO would fall into that category. Additionally, the 89 dairy farms that had $0 to 250 of NFIFO per cow would likely be financially stressed if they did have some off farm income.

More details on the cost of production on the 627 farms studied in 2001 are published in the paper titled "Milk Production Costs in 2001 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.