

1998 FINANCIAL BENCHMARKS on Selected WISCONSIN DAIRY FARMS

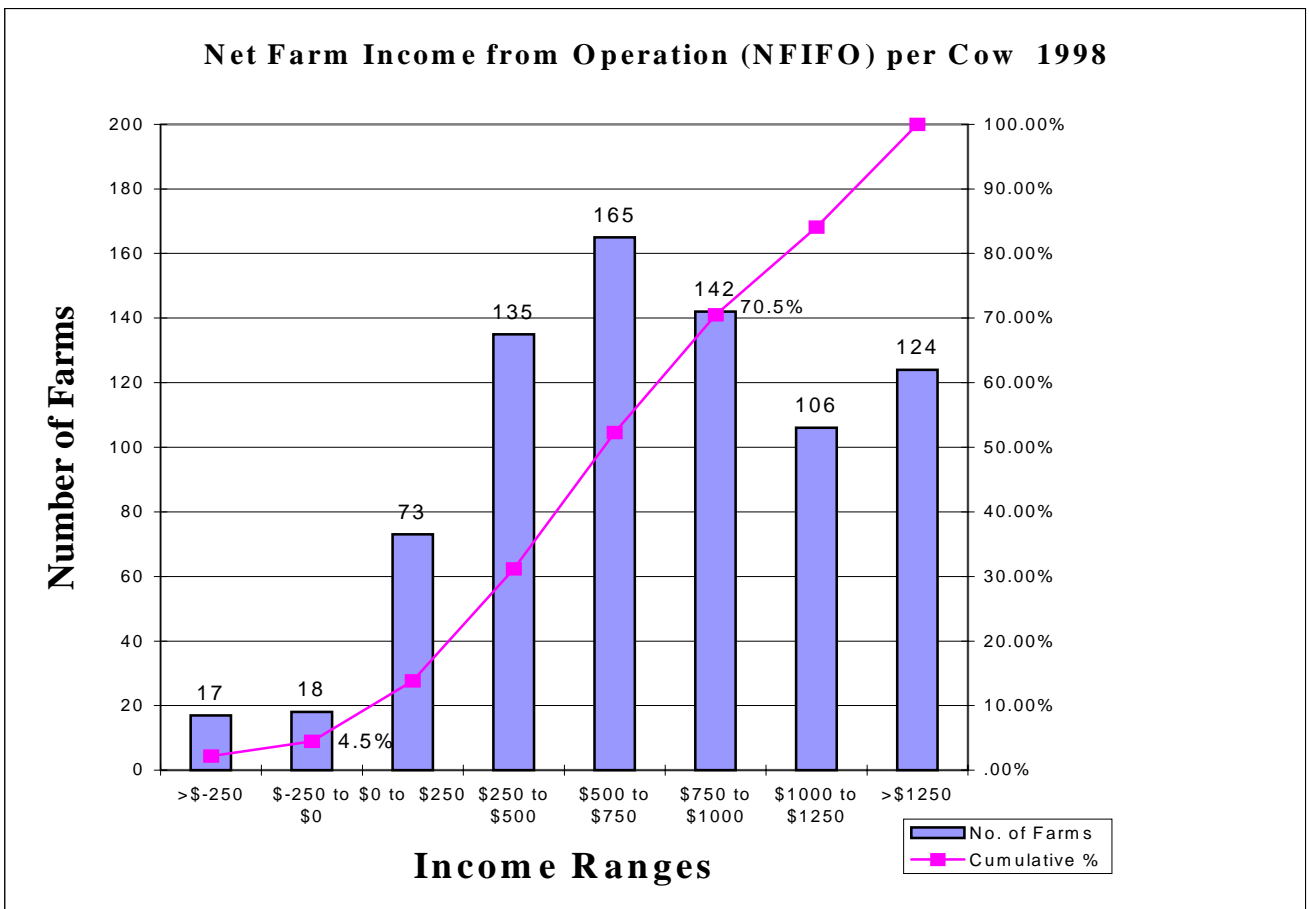
by Gary Frank and Jenny Vanderlin¹

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Introduction

In response to the record milk prices, profit margins in 1998 were better as dairy farm managers added cows and increased milk sold per cow. In this study of 780 dairy farms, Net Farm Income From Operations (NFIFO) averaged \$71,188 per farm while the NFIFO per cow averaged \$716. 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 the family's) unpaid labor & management, their equity capital and profit.

Figure 1

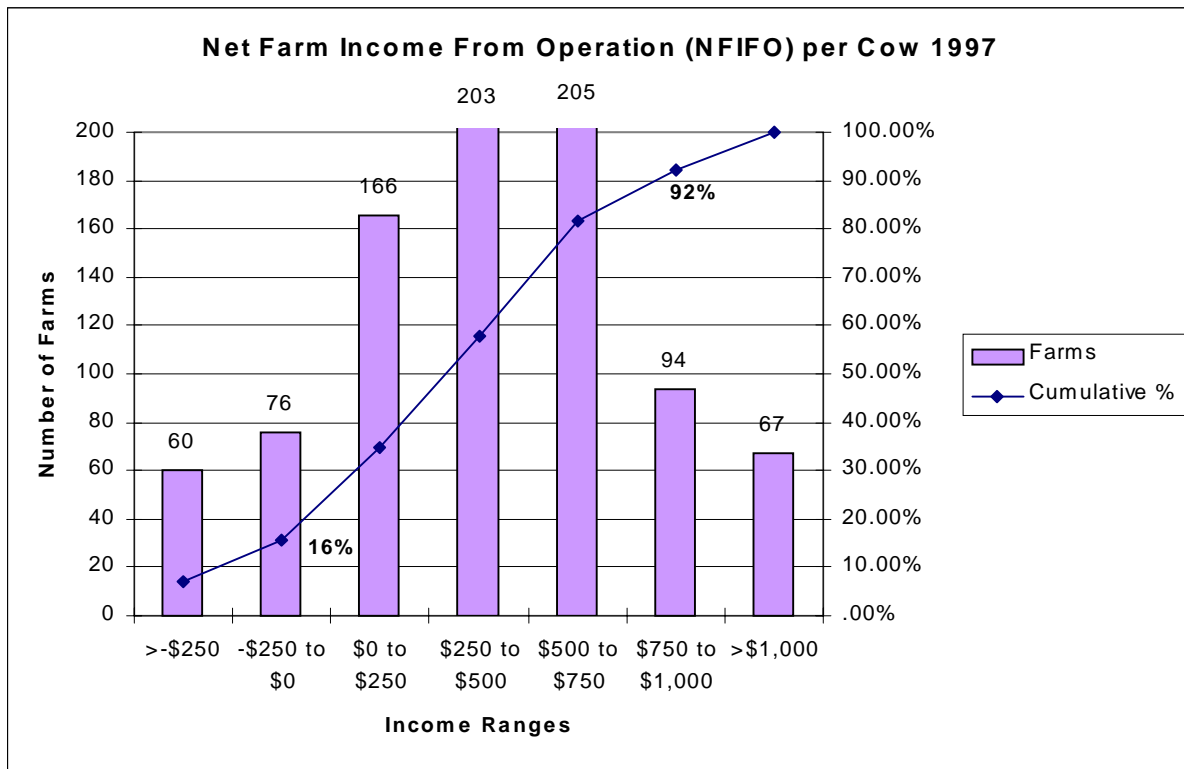


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Center for Dairy Profitability, College of Agricultural and Life Sciences, and Cooperative Extension, University of Wisconsin-Madison. They are grateful to Arlin Brannstrom, Tom Kriegl and Bruce Jones for their constructive comments.

Figure 1 shows a wide range of NFIFO per cow in 1998. One hundred and thirty-five had NFIFO per cow between \$250 and \$500. Four and one-half percent of the farms showed a negative NFIFO per cow compared to 16 percent in 1997 (see Figure 2). These 4.5 percent of farms produced 4.7 percent of the total milk sold by the farms in this study. Also, 29.5 percent of the farms had NFIFO per cow of greater than \$1000 compared to only 8 percent in 1997. Note: Figure 1 has more one more income range (>\$1,250) than Figure 2.

Figure 2



The average Rate of Return on Assets was 9.20 percent in 1998. It was 5.42 percent 5.36 percent and 5.57 percent in 1997, 1996 and 1995, respectively. These and other averages presented in this paper may be used by dairy producers to compare their farm's financial analysis and by consultants, bankers, and others working with dairy farmers to help them better understand their operations.

This paper presents profitability benchmarks plus benchmarks for liquidity, financial efficiency, and solvency and repayment capacity. When calculating opportunity costs the following criteria were used: \$8.50 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.

Data Source

Lakeshore Farm Management Association, Fox Valley Management Association and Wisconsin County Agents² originally collected this data. Personnel affiliated with these associations helped individual farm managers reconcile their financial data. Individual farm managers used a number of different manual and computerized record keeping systems to enter the initial financial records, including the Agricultural Accounting and Information Management System (AAIMS©).

In 1998, 950 financial data sets were received from Lakeshore Farm Management and Fox Valley Associations and 55 data sets from those participating in the Dairy Farm Business Summary (DFBS) program. Some of these records had milk income that was less than 60 percent of their total income. Those farms are not included in this analysis. However, the dairy farms left in the study still had a total of more than 77,500 cows and produced more than 1,566,000,000 pounds of milk.

Comparing the Studied Dairy Farms to Other Wisconsin Dairy Farms

The average number of cows per farm increased 7 cows to 99.5 cows in 1998, with 20,198 pounds of milk sold per cow. In 1993, the farms in this study averaged 71 cows and 17,801 pounds of milk sold per cow. In comparison, Wisconsin's 1998-herd size averaged 60 cows, with an average of 16,685 pounds of milk sold per cow. AgSource DHI (1998) herds averaged 70.6 cows, with production per cow estimated at 20,500 pounds.

Table 1 shows range and distribution of milk sold per cow on the farms studied and on AgSource DHI farms.

Table 1
Milk Sold per Cow

Pounds per Cow	Study Farms		AgSource DHI
	Number of Farms	Percent of Farms *	Percent of Herds *
Less than 13,000	36	5	2
13,000 – 15,000	57	7	5
15,001 – 17,000	96	12	12
17,001 – 19,000	157	20	20
19,001 – 21,000	196	25	25
21,0001 – 23,000	135	17	20
Greater than 23,000	103	13	17

* Percent columns may not add to 100 due to rounding.

Balance Sheet Statement

Table 2 shows the balance sheet statement, on a per cow basis, for the average farm in the study. This balance sheet both contains the “Market Value” of the farm assets and their basis by asset type. Also, this balance sheet follows the Farm Financial Task Force recommendations and has a “Contingent Liability” item and a “Statement of Equities.”

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The authors wish to thank Rolyn Jorgenson and other members of the Lakeshore Farm Management Association staff, Phil Christman and members of the Fox Valley Management Association as well as Nathan S. Splett, (UW-RF) and various county agents for their cooperation.

Table 2
Balance Sheet Statement
(per Cow)

For Year Ending December 31, 1998

Balance Sheet Statement prepared without audit from information provided.

Assets		Market Value			
Current		Beginning	Ending		
Cash Accounts (Sch 1)	\$	84	\$ 115		
Raised Crop Inventories (Sch 2)	\$	572	\$ 692		
Prepaid Expenses & Purchased Inventories (Sch 3)	\$	52	\$ 106		
Basis in Resale Livestock Purchase (Sch 4)	\$	1	\$ 1		
Accounts Receivable (Sch 5)	\$	11	\$ 15		
Raised Market Livestock, Etc. (Sch 6)	\$	14	\$ 14		
Total Current Assets	\$	733	\$ 942		
Non-Current		Beginning	Ending		
Breeding Livestock (Raised) (Sch 7 Part 1)	\$	1,383	\$ 1,452		
Breeding Livestock (Purchased) (Sch 7 Part II)	\$	271	\$ 301		
Farm Machinery & Equipment (Sch 8)	\$	1,254	\$ 1,349		
Real Estate (Sch 9 & 10)	\$	3,186	\$ 3,409		
Other Non-Current Assets (Sch 11)	\$	130	\$ 146		
Total Non-Current Assets	\$	6,225	\$ 6,657		
Total Farm Assets	\$	6,959	\$ 7,600		
Non-Farm Assets (Sch Y)	\$	244	\$ 288		
Total - All Assets	\$	7,203	\$ 7,888		
Liabilities					
Current		Beginning	Ending		
Account Payable (Sch A)	\$	44	\$ 26		
Current Portion of Non-Current Loans	\$	207	\$ 227		
Other Current Liabilities (Sch B)	\$	85	\$ 71		
Total Current Liabilities	\$	336	\$ 324		
Non-Current		Beginning	Ending		
Personal Property Loans - Intermediate (Sch C)	\$	978	\$ 992		
Real Estate Loans - Long Term (Sch D)	\$	1,500	\$ 1,569		
Contingent Liabilities	\$	1,320	\$ 1,456		
Total Non-Current Liabilities	\$	3,798	\$ 4,017		
Total Farm Liabilities	\$	4,134	\$ 4,341		
Non-Farm Liabilities (Sch Z)	\$	20	\$ 20		
Total - All Liabilities	\$	4,154	\$ 4,361		
Statement of Equities (Net Worth)					
		Beginning	Ending	Change	
Contributed Capital (Sch E)	\$	13	\$ 13	\$ 1	*All current assets & raised breeding animals are included in retained earnings.
Retained Earnings*	\$	2,013	\$ 2,380	\$ 367	
Valuation Adjustment*	\$	800	\$ 866	\$ 66	
Non-Farm Equities	\$	223	\$ 268	\$ 45	
Total Equities	\$	3,049	\$ 3,527	\$ 478	

The “Contingent Liabilities” were calculated by charging a selling cost of 7 percent on all farm assets except cash and prepaid expenses and calculating the estimated deferred income taxes that would be due if the farm was sold. Deferred income taxes were calculated by multiplying a percentage times the value of the assets minus any basis in the assets and the selling costs. The tax rate was set at 20 percent. It is realized that the income or capital gains tax rates vary depending on the value and type of assets that are sold in any given year, so the actual rate paid could be more or less than 20 percent. Some recognition on the contingent tax liability was needed however, so 20 percent was chosen.

The “Statement of Equities” is not calculated on all balance sheets, so some explanation may be helpful. The Statement of Equities splits the farm manager’s equity into four categories. Most current balance sheets only split the equity into two categories, farm and non-farm.

Separating the farm equity into 3 categories assists in understanding the factors underlying the change in equity. The 3 categories are contributed capital, retained earnings and valuation adjustment. **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 in 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 assets until it after it is sold and the taxes paid.

The balance sheet in Table 2 has the average total farm assets per cow at \$6,959 at the beginning of 1998 and \$7,600 at the end of 1998. The average total farm liabilities per cow are \$4,134 and \$4,341. Contingent liabilities were \$1,320 and \$1,456 of this total. Therefore, the debt that the study farm are paying interest on was \$2,814 and \$2,885, at the beginning and end of 1998, respectively. The average debt per cow, of the 780 farms in this study, was \$2,849. The average debt of the farms studied was \$2,747, \$2,611 and \$2,523, in 1997, 1996 and 1995, respectively.

The retained earnings increase in equity was \$367 per cow. The valuation adjustment change in equity was \$66. It would have been \$202 if contingent liabilities were not included on the balance sheet.

Selected Financial Measures of Studied Farms

The Farm Financial Standards Task Force (FFSTF) has recommended 16 financial measures and the background asset valuation procedure for consistent results. These recommendations and procedures are considered the starting point for farm financial benchmarks. Below are the formulas for those measures and their average value when FFSTF formulas and procedures were used on these 780 farms’ financial data.

Profitability Measures

Net Farm Income From Operations (NFIFO) =

Total Farm Income - Total Farm Expense (including all wages and benefits paid)

Rate of Return on Assets (ROROA) =

(NFIFO + Interest Paid - Unpaid Labor & Management Charge) / Average Total Farm Assets

Rate of Return on Equity (ROROE) =

(NFIFO - Unpaid Labor & Management Charge) / Average Total Farm Equity

Net Profit Margin (Margin) =

(NFIFO + Interest Paid - Unpaid Labor & Management Charge) / Total Farm Income

In this study of 780 farms, **total farm income** averaged \$366,842 per farm. **Total farm expense** averaged \$295,654 per farm. The **interest paid** averaged \$22,433 per farm. The “**Unpaid Labor & Management Charge**” averaged \$26,893 per farm + \$10,732 paid to dependants equals a total charge of \$37,625 for family labor and management. **Average total assets** per farm equaled \$725,125. The **average conventional debt** was \$283,390. The **net worth (equity)** averaged \$441,735 per farm. The average “contingent liability” was \$138,026 and was not subtracted from assets prior to the calculation of ROROE.

Table 2
Profitability Measures
1998-1995

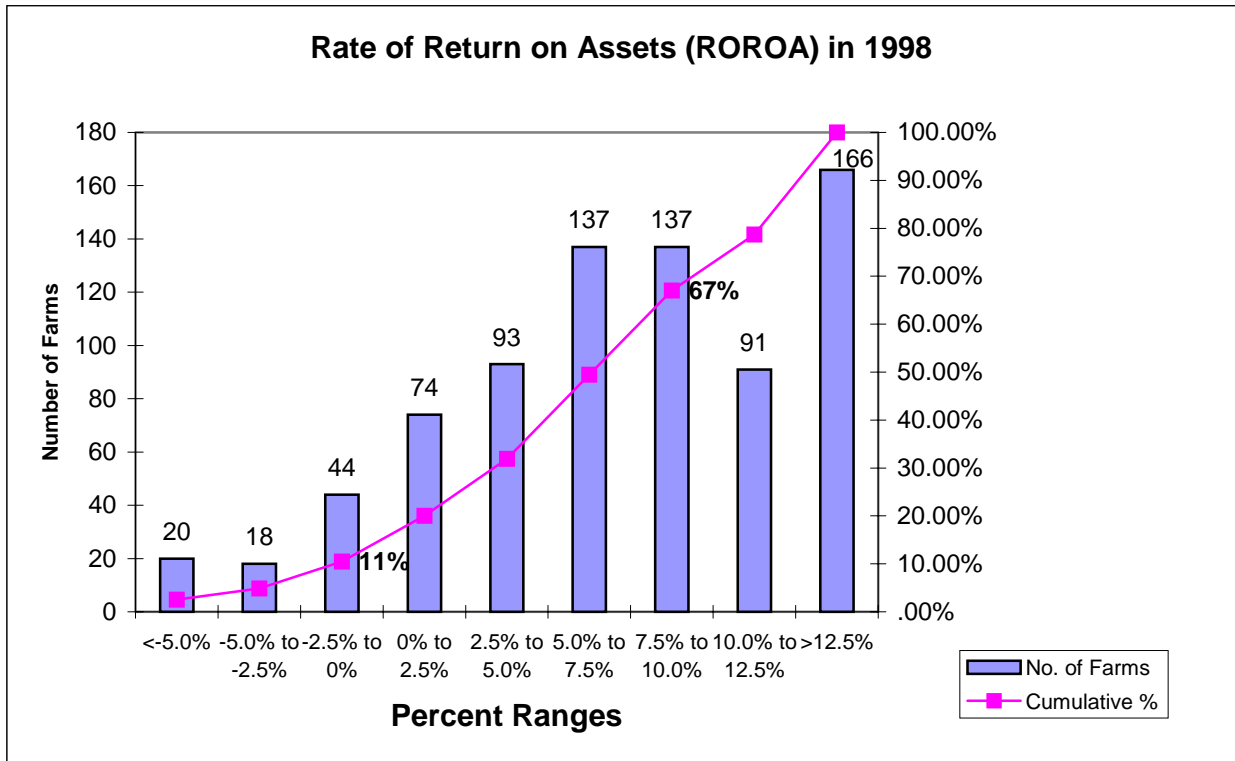
	1998	1997	1996	1995
NFIFO per farm	71,188	34,186	37,263	32,496
NFIFO per cow	716	370	448	426
ROROA	9.20	5.42	5.36	5.57
ROROE	10.03	3.72	3.92	4.18
Net Profit Margin	18.19	11.40	12.33	14.01

Notice ROROE is larger than ROROA in 1998. This means the average interest rate paid on liabilities is less than the ROROA. This should be looked on as great news for the Wisconsin Dairy Industry.

Figure 3 shows the number of farms in each of several-selected Rate of Return on Asset (ROROA) categories. Example, 93 farms had ROROA in the 2.5 to 5.0 percent range. It also shows the cumulative percentage of farms at those ranges. Example, 11 percent of all farms had a negative ROROA versus 21 percent of all farms having a negative ROROA in 1997.

In addition, 67 percent of farms had a ROROA of 10 percent or less or conversely 33 percent of farms (257 farms) had an ROROA of greater than 10 percent. This compares to 18 percent of the farms having a ROROA of greater than 10 percent in 1997.

Figure 3



Liquidity Measures

<p>Current Ratio = Current Assets / Current Liabilities</p>
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The average reported Current Ratio equaled 2.91 in 1998 and 2.26 in 1997. These current ratios are well above the goal of 1.25 or higher. They are very favorable because “Current Assets” are usually

measured on the 1st of January when dairy farmers have large inventories of hay and grain on hand. Current liabilities are accounts payable, operating loans, deferred interest payments, and other current liabilities plus the current portion of all non-current loans (the current portion of a non-current loan is the amount of the non-current loan’s principal due in the next 12 months). Farmers do not always know the current portion of their non-current loans. However, in 1998 and 1997, sufficient data was collected on most farms to estimate the current portion of all non-current loans.

$$\text{Working Capital} = \text{Current Assets} - \text{Current Liabilities}$$

The goal for working capital is one year's family draw.

The average reported Working Capital equaled \$61,536 in 1998 versus \$39,498 in 1997.

Two alternative liquidity measures were also calculated: "Cash Ratio Lite" and "Cash Ratio". One excludes the cash benefits, wages, and interest paid and the other includes cash benefits, wages, and interest paid.

$$\text{Cash Ratio Lite (excluding cash benefits, wages, and interest paid)} = (\text{Cash Farm Expense} - \text{Interest and Wages Paid}) / \text{Cash Farm Income} * 100$$

The average Cash Ratio Lite equaled 60 percent.

The cash farm expense averaged \$259,942 per farm.

The cash farm income averaged \$351,850 per farm.

$$\text{Cash Ratio (including cash benefits, wages, and interest paid)} = \text{Cash Farm Expense} / \text{Cash Farm Income} * 100$$

The average Cash Ratio equaled 74 percent.

Solvency Measures

$$\text{Debt to Asset Ratio} = \text{Average Total Farm Liabilities} / \text{Average Total Farm Assets}$$

The debt to asset ratio on the 780 farms in this sample averaged 0.39. This equates to \$39 of debt for every \$100 of fair market value assets.

The average debt per farm increased approximately \$29,281 to \$283,390 in 1998. The debt per cow was \$2,849. On average for all types of farms, farm debt per \$100 of assets is \$18-20 and generally debt in excess of \$40 per \$100 of assets is considered risky.

$$\text{Debt to Equity Ratio (Leverage Ratio)} = \text{Average Total Farm Liabilities} / \text{Average Farm Net Worth}$$

The leverage ratio averaged 0.64.

Efficiency Measures

$$\text{Asset Turnover Ratio} = \text{Total Farm Income} / \text{Average Total Assets}$$

(Notice: the asset turnover ratio times the net profit margin equals ROROA.)

$$\text{Basic Cost Ratio}^* = \frac{(\text{Total Farm Expense} - \text{Wages \& Benefits Paid} - \text{Interest Paid} - \text{Depreciation})}{\text{Total Farm Income}}$$

The amount of wages and benefits paid averaged \$34,575 per farm, versus \$29,826, and \$25,022 in 1997 and 1996, respectively.

$$\text{Wage \& Benefits Paid Ratio}^* = \frac{\text{Wages \& Benefits Paid}}{\text{Total Farm Income}}$$

*Note: In the FFSTF recommendations these two ratios are combined into one ratio called the “Operating Expense Ratio.”

$$\text{Interest Paid Ratio} = \frac{\text{Interest Paid}}{\text{Total Farm Income}}$$

$$\text{Depreciation Expense Ratio} = \frac{\text{Depreciation}}{\text{Total Farm Income}}$$

Note: the sum of these last 5 ratios must equal 1.

$$\text{NFIFO Ratio} = \frac{\text{NFIFO}}{\text{Total Farm Income}}$$

Efficiency Measures
1998-1995

	1998	1997	1996	1995
Asset Turnover Ratio	0.506	0.476	0.435	0.397
Basic Cost Ratio	0.534	0.588	0.580	0.576
Wage & Benefits Paid Ratio	0.094	0.101	0.091	0.083
Interest Paid Ratio	0.061	0.068	0.064	0.071
Depreciation Expense Ratio	0.117	0.126	0.130	0.122
NFIFO Ratio	0.194	0.116	0.135	0.148

The intensity of capital use is measured by the “Asset Turnover Ratio.” It has been steadily increasing. This shows that farm managers are producing more income for each dollar they invest than they did in prior years. Ten years ago the goal for Asset Turnover Ratio was 0.35, now it is 0.50 or more.

The trend in the efficiency measure “NFIFO Ratio” was causing concerns. It has dropped 0.032 (22 percent) from 1995 to 1997, but rebounded this year. This occurred even with an increase in wages paid per cow. They were \$353, \$323, \$300 and \$237 in 1998, 1997, 1996 and 1995, respectively. This increase in paid labor per cow is a change in how the industry operates.

Repayment Capacity Measures

The FFSTF recommends the following 2 repayment capacity measures. Note that they require a knowledge of: a) non-farm income, b) annual scheduled principal and interest payments, and c) cash withdrawals for family living and income tax payments. The quality of this data set's "non-farm income" information could be improved. However, using the information from these data resulted in the following values:

$$\text{Coverage Ratio} = \frac{(\text{NFI} + \text{Non-farm Incomes} + \text{Interest Paid} + \text{Depreciation} - \text{Family Living and Income \& SST Taxes})}{(\text{Scheduled Principal and Interest Payments})}$$

Coverage Ratio = 2.12 (goal is 1.25 or greater)

$$\text{Coverage Margin} = \begin{aligned} &\text{NFI} + \text{Non-Farm Incomes} + \text{Depreciation} \\ &- \text{Family Living and Income \& SST Taxes} \\ &- \text{Scheduled Principal Payments} \end{aligned}$$

Coverage Margin = \$56,130 (this value should be positive)

Summary

The farms in this study were larger and had higher average production per cow than the Wisconsin average. Total income per cow averaged \$3,688, of which \$3,129 was milk income versus \$3,181 and \$2,711 in 1997. In addition, 90 percent of total income was from the sale of products directly related to the dairy enterprise (milk, cull cows, and calves). Total allocated expenses per cow averaged \$2,973, which left \$716 per cow as a return to the farmers (and family's) unpaid labor, management, and equity capital (NFIFO). NFIFO per cow in 1997 was \$370

The corresponding 1996 values for total income per cow was \$3,318; total allocated expenses per cow, \$2,870; and NFIFO per cow, \$448.

The ROROA had remained relatively steady (approximately 5.5 percent) from 1995 through 1997. However, in 1998 it increased to 9.20 percent. The Asset Turnover ratio has increased by more than 25 percent from 1995 to 1998 (0.397 to 0.506). This increase in income per dollar of investment is only some of the good financial news about the Wisconsin Dairy Industry.

Basic Costs per Hundredweight Equivalent (CWT EQ) were \$8.23, \$7.86, \$8.55 and \$7.41, in 1998, 1997, 1996 and 1995, respectively. More details on the cost of production on the 780 farms studied in 1998 is published in the paper titled "1998 Milk Production Costs in 1998 on Selected Wisconsin Dairy Farms." This paper provides cost of production analysis per farm, per cow and per hundredweight equivalent. It is also published on the Center for Dairy Profitability's website at www.wisc.edu/dairy-profit under "Papers & Publications."