

FINANCIAL BENCHMARKS Using 1997 Data from 871 WISCONSIN DAIRY FARMS

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Introduction

In 1997, profit margins were narrower and debt per farm higher as dairy farm managers added cows in the struggle to maintain net income. In this study of 871 dairy farms, Net Farm Income From Operations (NFIFO) averaged \$34,186 per farm while the NFIFO per cow averaged \$370. NFIFO is the basis for the profitability benchmarks. **NFIFO is not the farm's profit** (it will be divided between the compensation to the owner-operator-manager's (and the family's) unpaid labor & management and provides a return to their equity capital).

Figure 1

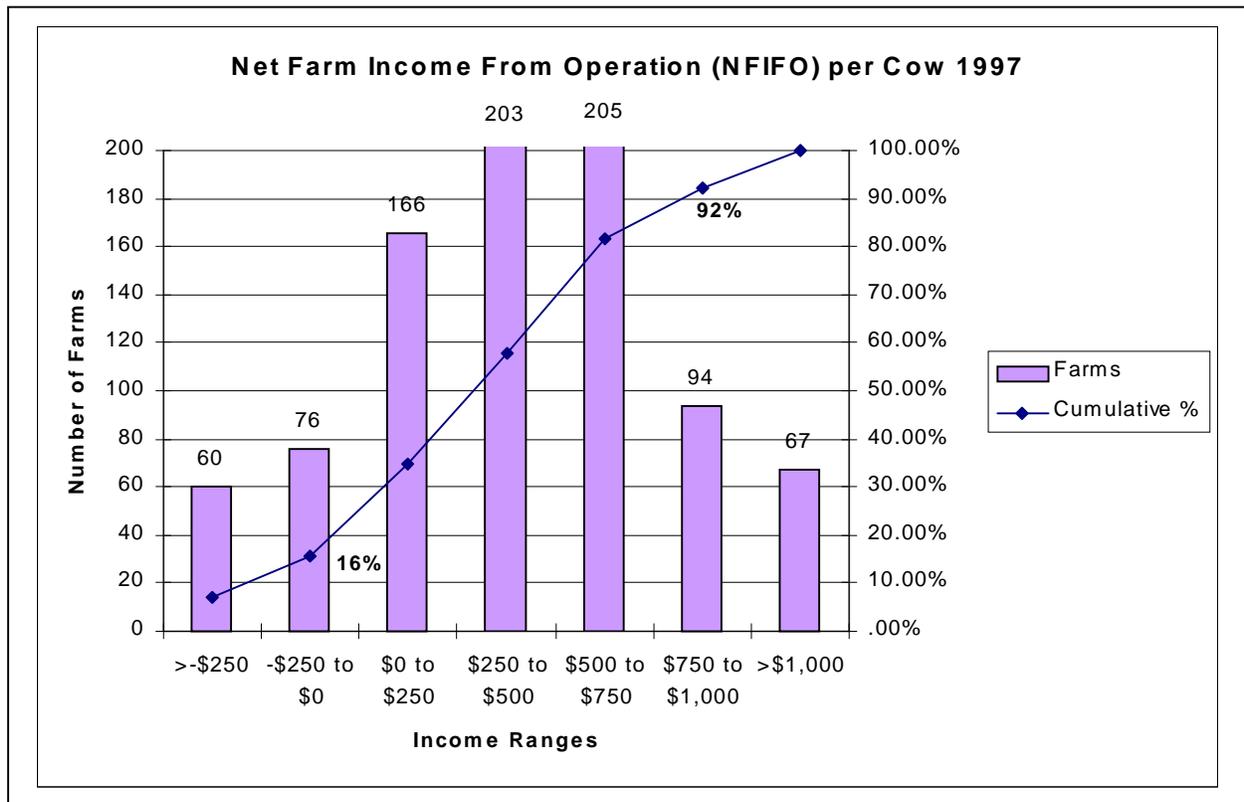


Figure 1 shows a wide range of NFIFO per cow. Two hundred and three farms had NFIFO per cow between \$250 and \$500. Sixteen percent of the farms showed a negative NFIFO per cow. These farms

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produced 13 percent of the total milk produced by the farms in this study. Also, 8 percent of the farms had NFIFO per cow of greater than \$1,000; they produced 7 percent of the total milk.

The Rate of Return on Assets was 5.42 percent in 1997. It was 5.36 percent and 5.57 percent in 1996 and 1995, respectively. These and the 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, solvency and repayment capacity. When calculating opportunity the following criteria were used: \$8.25 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.

Data Source

Lakeshore Farm Management Association and Fox Valley Management Association² 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 1997, 940 farm financial data sets were received from Lakeshore Farm Management and Fox Valley Associations. 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 farms left in the study had a total of 80,529 dairy cows and 1,534,610,992 pounds of milk sold.

Comparing the Studied Dairy Farms to Other Wisconsin Dairy Farms

The average number of cows per farm increased 8.5 cows to 92.5 cows in 1997, with 19,057 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. Wisconsin's 1997 herd size averaged 60 cows, with an average of 16,057 pounds of milk sold per cow. AgSource DHI (1997) herds averaged 67.4 cows, with production per cow estimated at **18,728** pounds.

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

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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	68	8	2
13,001 - 15,000	78	9	6
15,001 - 17,000	132	15	15
17,001 - 19,000	189	22	23
19,001 - 21,000	204	23	24
21,001 - 23,000	137	16	18
greater than 23,000	63	7	13

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

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 871 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 871 farms, **total farm income** averaged \$294,146 per farm. **Total farm expense** averaged \$259,961 per farm. The **interest paid** averaged \$20,095 per farm. The **“Unpaid Labor & Management Charge”** averaged \$23,584 per farm + \$10,396 paid to dependants = \$33,980. **Average total assets** per farm equaled \$625,162 versus \$634,980 and \$552,279 in 1996 and 1995, respectively. The **net worth (equity)** averaged \$371,053 per farm. The **average debt** was \$254,109 versus \$216,733 and \$191,726 in 1996 and 1995, respectively.

Table 2
Profitability Measures, 1997, 1996 & 1995

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

Figure 2

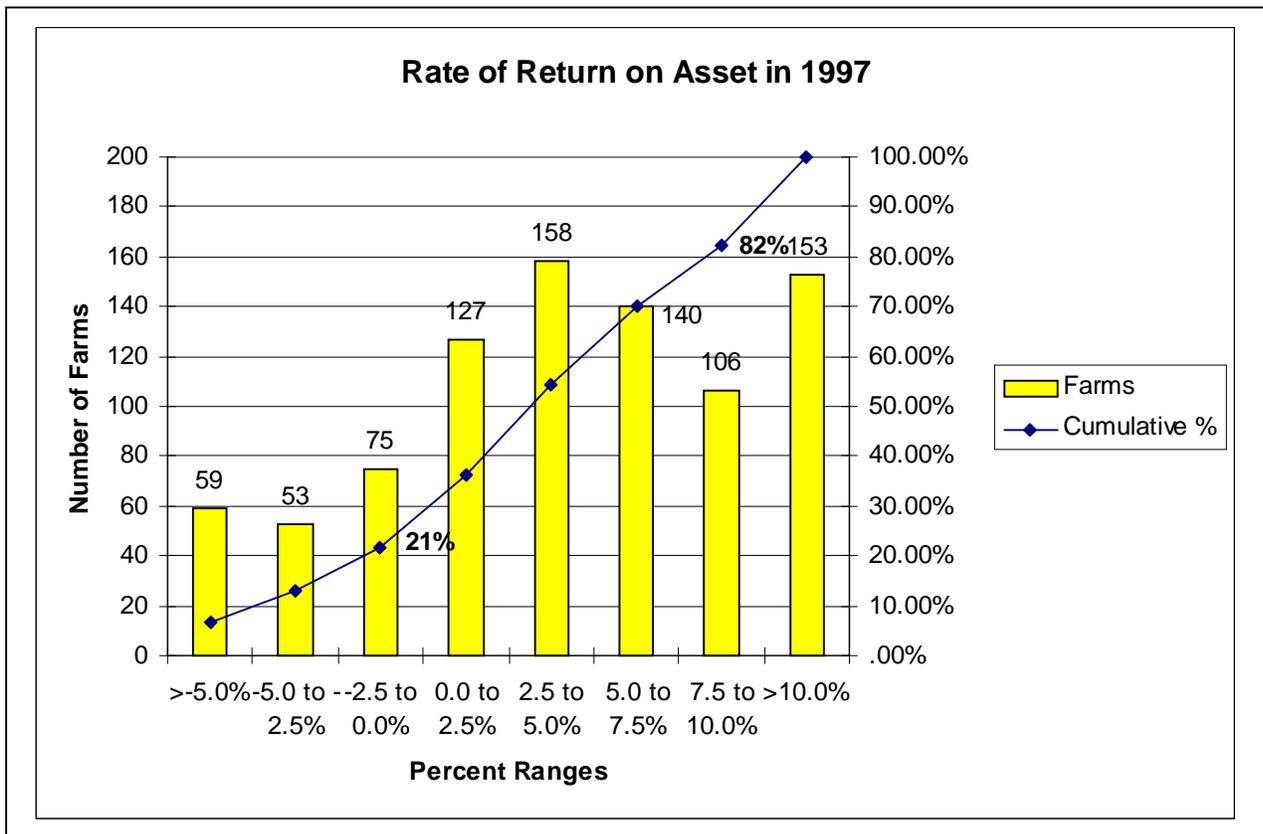


Figure 2 shows the number of farms in each of several-selected Rate of Return on Asset (ROROA) categories. Example, 158 farms had ROROA in the 2.5 to 5.0 percent range. It also shows the cumulative percentage of farms at those ranges. Example, 21 percent of all farms had a negative ROROA and produced 15 percent of the milk in this sample.

In addition, 82 percent of farms had a ROROA of 10 percent or less or conversely 18 percent of farms (153 farms) had an ROROA of greater than 10 percent. These 153 farms produced 29 percent of the milk in this sample.

Liquidity Measures

Current Ratio =

$$\text{Current Assets} / \text{Current Liabilities}$$

 The average reported Current Ratio equaled 2.26.

The “Current Ratio” in this study, is well above the goal of 1.25 or higher. It is 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 the 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 1997, sufficient data was collected on most farms to estimate the current portion of all non-current loans.

Working Capital =

$$\text{Current Assets} - \text{Current Liabilities}$$

 The average reported Working Capital equaled
 \$39,498

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

Both Current Ratio and Working Capital are lower than they were in 1996. This is likely due to the reduced value of feed inventories, when comparing 1997 to 1996. This lower feed

inventory value reduces the “Current Assets” value and the “Total Assets” value. Also, additional “non-current” debt increases the amount of the debt that is considered “current.” This will further reduce these values.

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.

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 \$220,452 per farm.

The cash farm income averaged \$282,663 per farm.

Cash Ratio (including cash benefits, wages, and interest paid) =

$$\text{Cash Farm Expense} / \text{Cash Farm Income} * 100$$

 The average Cash Ratio equaled 78 percent.

Solvency Measures

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

The debt to asset ratio on the 871 farms in this sample averaged 0.41. This equates to \$41 of debt for every \$100 of fair market value assets.

The average debt per farm increased approximately \$38,000 to \$254,109 in 1997. The debt per cow was \$2,748. On average, farm debt per \$100 of assets is \$18-20 and generally debt in excess of \$40 per \$100 of assets is considered risky.

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

The leverage ratio averaged 0.69.

Efficiency Measures

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

(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 \$29,826 per farm, and increase of almost \$5,000 per farm from 1996.

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

*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, 1995 & 1996

Item	1997	1996	1995
Asset Turnover Ratio	0.476	0.435	0.397
Basic Cost Ratio	0.588	0.580	0.576
Wage & Benefits Paid Ratio	0.101	0.091	0.083
Interest Paid Ratio	0.068	0.064	0.071
Depreciation Expense Ratio	0.126	0.130	0.122
NFIFO Ratio	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.

The trend in the efficiency measure “NFIFO Ratio” may cause concerns. It has dropped 0.032 (22 percent) since 1995. However, the majority of this decline is explained by the increase in wages & benefits paid; some of these dollars are being paid to the owner-operator-manager’s dependents. This increase in paid labor may be a change in how the industry operates.

The remainder of the decline in the NFIFO Ratio is due to the increase in the “Basic Cost Ratio.” This may also be due to a change in the management style of farm managers. Managers are buying (versus producing) more of the feed and other items required to produce milk. These two changes may cause a revaluation of the goal for the NFIFO Ratio. The current goal is greater than or equal to 0.150.

Figure 3

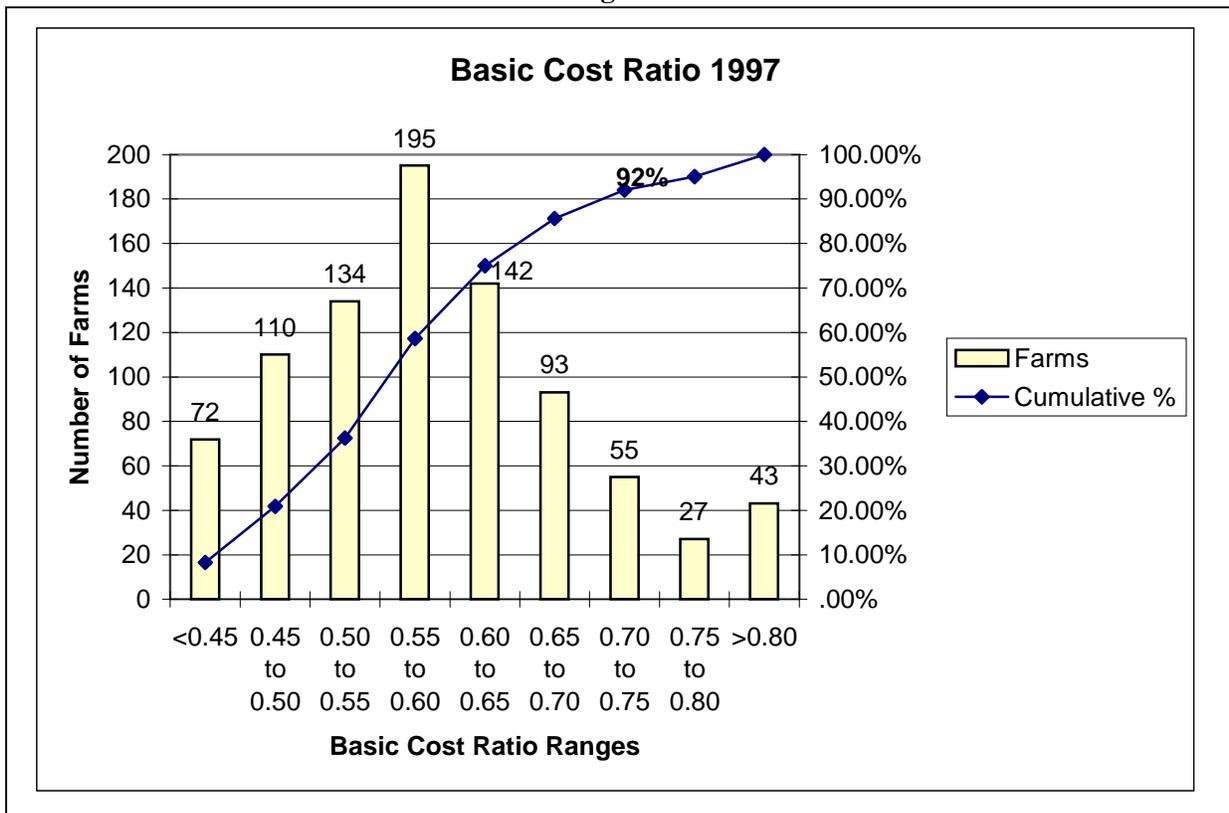


Figure 3 shows there are 195 farms with a “Basic Cost” ratio of between 0.55 and 0.60. Also, 92 percent of the farms in this study had a Basic Cost Ratio of less than 0.75. Those farms accounted for 95 percent of the milk produced by the farms in this study. A farm with a Basic Cost Ratio of greater than 0.75 is at risk for failure.

Repayment Capacity Measures

Principal Repayment and Capital Replacement Margin =
NFIFO + Depreciation + Capital Sales - Unpaid Labor & Management Charge

The average RR margin equaled \$50,887 per farm or \$550 per cow.

“Principal Repayment and Capital Replacement (RR) Margin” decreased by about \$8,000 from 1996 to 1997. The increased level of debt demanding repayment compounds this margin’s message.

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:

Coverage Ratio = 1.42 (goal is 1.25 or greater)

Coverage Margin = \$21,155 (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 \$3,181, of which \$2,711 was milk income. In addition, 91 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 \$2,811, which left \$370 per cow as a return to the farmer's (and family's) unpaid labor, management, and equity capital (NFIFO).

The corresponding 1996 values for total income per cow was \$3,318; total allocated expenses per cow, \$2,870; and NFIFO per cow, \$448. This drop in NFIFO per cow may cause concerns. NFIFO (on both a per cow and ratio basis) is slowly being eroded by a change in how the industry operates. As a larger percent of the labor & management required to operate a dairy is paid, NFIFO becomes more of a return to the farm manager’s equity.

The ROROA has remained relatively steady (approximately 5.5 percent) over the last 3 years. However, farms with a negative ROROA are in a very risky position. Those farms produced 15 percent of the milk in this sample.

More details on these 871 farms cost of production is published in the paper “1997 Milk Production Costs.” This paper provides individual cost categories of the cost of production analysis. This analysis is performed on both per cow and per hundredweight equivalent basis.