

# Dairy Non-Feed Income and Expense Benchmarks

**Charles Martinez**, *Assistant Professor, Department of Agricultural and Resource Economics*

**David Bilderback**, *Extension Area Specialist, UT Extension Eastern Region*

**Elizabeth Eckelkamp**, *Assistant Professor, Department of Animal Science*

**Hal Pepper**, *Extension Specialist, Center for Profitable Agriculture*

**Tim Cross**, *Senior Vice President and Senior Vice Chancellor, UT Institute of Agriculture*

## Introduction

In any business, record keeping is a financial priority. In agriculture, record keeping can help producers understand the breakeven value, cost structure and profitability drivers for their business. A major benefit can also be analysis of financial health. University of Tennessee Extension has developed the Dairy Gauge Benchmarking program to help dairy producers better understand what their financial statements suggest about financial health. Within the program, there are three areas that were developed specifically for gauging a dairy business's health. The three areas are 1) balance sheet and profitability dairy benchmarks, 2) dairy feed benchmarks, and 3) dairy non-feed income and expense benchmarks. This publication is focused on the non-feed income and expense benchmarks.

When evaluating income and expense for a dairy, look at each category from a per cow and a per milk CWT (hundredweight = 100 lbs. of milk) basis. To calculate the farm's income and expenses for all categories on a per cow basis, divide each annual income and expense category by the total number of cows in production. Heifers that have not calved should not be included because they have not generated revenue for the dairy. It can be difficult to calculate a specific number of cows milked in a year due to culled cows and dry cows. To address this, add the average annual number of cows that are lactating and dry. For example, if the farm's total annual fuel expense is \$30,000, and the average number of lactating cows is 200 and the average number dry is 50, divide \$30,000 by 250 (200 lactating + 50 dry) to get a fuel expense of \$120 per cow.

$$\text{Income or Expense Category Per Cow} = \frac{\text{Income or Expense Category Total}}{\text{Number of Cows (Dry and Lactating)}} \quad (1)$$

Since cow numbers are variable, a more comparable metric is a per CWT basis. Two key pieces of information are needed: annual pounds of milk sold and income and expense by category. To calculate the farm's income and expenses for all categories on a per CWT basis, divide each

annual income and expense category by the total CWT sold. For example, if the farm's total annual fuel expense is \$30,000, and the CWT is 55,000, divide \$30,000 by 55,000 to get a fuel expense of \$0.54 per CWT.

$$\text{Income or Expense Category Per CWT} = \frac{\text{Income or Expense Category Total}}{\text{Annual CWT of Milk Sold}} \quad (2)$$

By examining each income and expense category on a per cow and CWT basis, it allows the producer to analyze each category from three perspectives: total farm, per cow and per CWT.

Major non-feed benchmarks include livestock, interest and labor expenses. These expenses take up a large amount in dairy operation cost structures. Labor is typically the second largest expense after feed costs (Shoemaker et al., 2009; Cross, 1997). By benchmarking these expenses, a producer can analyze the impact of these large cost components on their income.

These dairy benchmarks also utilize Net Farm Income from Operations (NFIFO) that was developed by Kohl and Blonde (2009). By excluding gains or losses from disposal of capital assets, the benchmark accounts for income solely from the operation. NFIFO is calculated by the following equation and is discussed in greater detail in W 981 Dairy Balance Sheet and Profitability Benchmarks:

$$\text{NFIFO}^1 = \text{Total Gross Income} - \text{Total Farm Expenses} \quad (3)$$

## The Benchmarks

### Income Per Cow

$$\text{Income Per Cow} = \frac{\text{Gross Farm Income}}{\text{Number of Cows}}$$

**Target Value:** Greater than \$5,000

**Overview:** This benchmark indicates the income per head for the total herd (both lactating and dry cows). By generating \$5,000 or more per head, the gross income level is efficient. If income categories have been broken-down on a per cow basis it will allow the farm to evaluate the income breakdown. Milk production is the driving force for this measurement. Therefore, if annual milk price is suppressed, it could be difficult to achieve the target value of this benchmark. It is key to note cull and calf income can be critical to achieving this goal. It is not uncommon to see dairies surpassing \$6,000 income per cow.

---

<sup>1</sup> Excludes gains or losses from disposal of farm capital assets.

Great	Watch	Investigate
Greater than \$5,000	\$5,000 to \$4,000	Less than \$4,000
Income per cow is over \$5,000/cow, which means the cows are generating income at a competitive rate.	Income per cow is just below the benchmark. Evaluate income sources starting with milk production, followed by other revenue streams.	Analyze milk volume per cow. Look at milk components, cull income and other sources of farm income.

### Labor Expense

$$\text{Labor Expense} = \frac{\text{Total Labor Costs} + \text{Payroll Taxes} + \text{Employee Benefits}}{\text{Gross Revenue}} * 100$$

**Target Value:** Less than 15 percent

**Overview:** Labor accounts for the second highest expense on dairy farms, after feed costs. The labor force on the dairy also has a big influence on many daily tasks. This benchmark gauges the output of the labor force and the effect of wages on the key income source of any dairy—milk. The amount of hired labor can be influenced by family labor and size of the dairy. Larger dairies likely need more hired labor or more skilled labor to monitor technologies that would offset more individuals. By monitoring labor costs on a CWT basis, a manager can react quickly if productivity decreases or if the labor expense is too high compared to milk production. This benchmark calculation includes management labor, family labor and hired labor.

Great	Watch	Investigate
Less than 15 percent	15 to 20 percent	Greater than 20 percent
Labor expenses are under control.	Labor expenses are above the benchmark, check for decreased revenue streams and observe labor usage on the farm.	Greater than 20 percent. Evaluate the farm’s labor force to see if it can be more efficient.

### Livestock Expenses

$$\text{Livestock Expenses} = \frac{(\text{Animal Health} + \text{Breeding})}{\text{Gross Revenue}} * 100$$

**Target Value:** Less than four percent

**Overview:** A healthy, reproductively sound herd is a major key to sustainability. If a herd is constantly experiencing health issues or sustains reproduction issues (i.e. open cattle not conceiving, high pregnancy loss), there could be a reduction in future milk flow (Sipiorski, 2013). Examples of animal health costs are veterinarian costs, medicine costs and hoof trimming.

A high livestock expense ratio can lead to cost inefficiencies in other expense areas due to lower production. A good health program and breeding protocol are critical to this benchmark.

Great	Watch	Investigate
Less than four percent	4 to 5.5 percent	5.5 percent or greater
Livestock expenses are under control.	Livestock expenses are slightly elevated above the benchmark, check for decreased revenue streams and observe health program and breeding protocol.	Analyze the animal health program and breeding protocol. Veterinarian assistance is probably needed.

### Interest Expense Ratio

$$\text{Interest Expense Ratio} = \frac{\text{Interest Expense}}{\text{Gross Farm Income}} * 100$$

**Target Value:** Less than five percent

**Overview:** This benchmark gauges the financial efficiency of the dairy generating income versus the interest expense (debt) of the dairy. A high interest rate or debt structure, can increase interest expense and will decrease the dairy’s profitability. If the dairy’s revenue sources are generating low gross farm income, the dairy’s profitability can also be affected. If a dairy continuously has a high interest expense or generates low gross farm income, the dairy can become susceptible to long-term sustainability issues. Debt structure and interest rates should be analyzed annually to ensure borrowing efficiency is achieved. If a dairy has a low interest expense ratio, the dairy is utilizing its debt efficiently and has sufficient income sources.

Great	Watch	Investigate
Less than five percent	5 to 10 percent	10 percent or greater
The ratio indicates that less than five percent of gross farm income is used to pay for borrowed capital.	Interest expense is slightly elevated. Check for decreased revenue streams, debt structure and evaluate prevailing interest rates.	Consult the farm’s financial advisor(s). Analyze debt structure, interest rates and income sources.

### Operation Cost (Percent of Gross Revenue)

$$\text{Operation Cost (\% of Gross Revenue)} = \frac{(\text{Total Cash Farm Expense} - \text{Interest})}{\text{Gross Farm Income}} * 100$$

**Target Value:** Less than 80 percent

**Overview:** This benchmark gauges the financial efficiency of the dairy from an expense and income perspective. By subtracting the interest expense from the total variable costs expense, the benchmark can gauge profitability from gross income. If a dairy’s expenses increase too much, the dairy loses long-term profitability. By having an operation costs percentage of 80 percent or less, the dairy is efficiently using their inputs in order to generate income.

Great	Watch	Investigate
Less than 80 percent	80 to 85 percent	85 percent or greater
Operation costs are under control.	Operation costs are slightly above the benchmark. Check for decreased revenue streams. This can affect cash flow problems in the long run.	Examine the dairy’s variable expenses. Some expenses will need to be decreased.

### Net Farm Income Ratio

$$\text{Net Farm Income Ratio} = \frac{\text{NFIFO}}{\text{Gross Farm Income}} * 100$$

**Target Value:** Greater than 20 percent

**Overview:** This financial efficiency benchmark measures the dairy from a Net Farm Income from Operations (NFIFO) and gross farm income perspective. If a dairy generates low gross farm income, the net farm income ratio will be negatively affected. Additionally, NFIFO of a dairy can be lowered if expenses become too high. If either or both of the aforementioned situations occur, this ratio will signal that the dairy is not efficient with their expenses and/or needs to look at income sources. Ideally, an efficient dairy has a net farm income ratio of 20 percent or better.

Great	Watch	Investigate
20 percent or greater	20 to 15 percent	Less than 15 percent
The farm’s net farm income is exceeding the benchmarks.	The farm’s net farm income is getting close to the benchmark. This could make it hard to meet future principle & interest payments.	Consult the farm’s financial advisor(s). Analyze the farm’s income sources and expenses to find efficiency issues that are lowering profitability.

## Conclusion

Dairies that utilize the non-feed benchmarks suggested in this publication can identify potential issues with the dairy’s income and expenses. Benchmarks in the “watch” column can help farmers proactively adjust their cost structure. By identifying benchmarks in the watch column, producers can keep moderate problems from becoming major financial issues.

Calculating these benchmarks after every fiscal year allows producers to capture trends in the non-feed benchmarks. Capturing and understanding trends will allow the enterprise to strategically plan for moving toward the “Great” column. By combining the dairy non-feed income and expense benchmarks with the dairy feed benchmarks and the dairy balance sheet and profitability benchmarks, the dairy enterprise can plan to be as efficient as possible regardless of size.

The two complementary publications are:

- Dairy Feed Benchmarks W 980
- Dairy Balance Sheet and Profitability Benchmarks W 981

## References

Kohl, D., and G. Blonde, 2009. “Farm financial ratios and benchmarks: Calculations and implications.” Centre for Dairy Profitability, University of Wisconsin-Madison.

Sipiorski, G, 2013. “The dairy dozen: 12 key financial indicators.” Hoard’s Dairyman, April 2013

Shoemaker, D. et al., 2009. “15 Measures of Dairy Farm Competitiveness.” Ohio State University Extension. [LINK](#)

Cross, T, 1997. “Dairy Financial Ratios, Dairy Plus Manual.” University of Tennessee Extension.



UTIA.TENNESSEE.EDU

Real. Life. Solutions.™

W 979 2/21 21-0140

Programs in agriculture and natural resources, 4-H youth development, family and consumer sciences, and resource development. University of Tennessee Institute of Agriculture, U.S. Department of Agriculture and county governments cooperating. UT Extension provides equal opportunities in programs and employment.