

# Dairy Balance Sheet and Profitability Benchmarks

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## Introduction

In any business, recordkeeping is an important practice for financial success. In agriculture, recordkeeping can help producers understand the production/input efficiency, breakeven values, cost structure and profitability drivers for their business. A major benefit can also be financial health analyses. University of Tennessee Extension has developed the Dairy Gauge Benchmarking program to help dairy producers better understand what their financial statements and key ratios suggest about the financial health of their business. Within the program, there are three areas that were developed specifically for gauging a dairy business's financial 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 dairy balance sheet and profitability benchmarks.

It is recommended that a dairy's balance sheet be updated annually. Each update will give a financial snapshot of the farm. A great time of year to update the farm balance sheet is the week before New Years. Typically, it is a slower time of year on the farm and hard to get things done because of the holidays. By taking good inventory of farm assets for the balance sheet, a producer can gain a stronger assessment of a dairy's profitability.

Farm production decisions, weather and market changes will all affect the balance sheet and profitability benchmarks over time. One example would be a summer drought. The changes that could occur are lower stored forages and possibly an increased operating loan balance to cover increased purchased feed needs. As for profitability benchmarks, the farm would sustain higher operation costs because of feed purchased.

## What is a Balance Sheet?

A balance sheet is a financial statement that accounts for total assets, total liabilities and owner's equity in a business. A balance sheet follows the standard accounting equation:

$$\text{Total Assets} = \text{Total Liabilities} + \text{Owner's Equity}$$

## **Assets**

Assets can be broken down into two categories: current asset(s) and noncurrent asset(s). Current assets are items that are cash (or cash equivalents) or can become cash within a fiscal year (Campbell et al., 2020). Noncurrent assets can be further broken down into the subsets of intermediate and long-term assets. Intermediate assets are items that have a useful life between one and 10 years. Long-term assets are items that have a useful life greater than 10 years (Campbell et al., 2020; Holland, 1997).

## **Liabilities**

Like assets, liabilities are itemized into current and noncurrent. Current liabilities are debts that must be paid within 12 months (Campbell et al., 2020). Noncurrent liabilities are broken into two subsets, intermediate and long-term. Intermediate liabilities are debt that will be paid between one and 10 years. Long-term liabilities are debts that will take longer than 10 years to repay (Campbell et al., 2020; McGrann et al., 2003).

## **Owner's Equity**

Owner's equity can be considered the farm's net worth. To capture a dairy owner's equity, the benchmark program totals the assets and subtracts the total liabilities.

## **Production and Other Financial Information**

In addition to balance sheet items, the profitability benchmarks incorporate production cost and other financial information. The items below indicate what other items are used and where they can be found.

- The number of cows (average annual number of lactating and dry)
  - This number will be generally known by the producer from their production worksheets.
- Gross revenue
  - This will be found in the dairy's income statement.
- Farm interest expense
  - The producer can find this in the expense section of their income statement or Schedule F tax document.
- Operator management fee (value of owner/operator time - salary received)
  - This value is determined by the operating manager for their time and labor. If the operator receives wages and benefits, they should be subtracted from the value of the owner/operator's time.
- Net Farm Income from Operations, NFIFO (Gross farm revenue - Farm expenses) (Kohl and Blonde, 2009)<sup>1</sup>
  - Gross farm revenue and expenses can be found on the dairy's income statement.

## **Balance Sheet Benchmarks**

It is important to note that any benchmark, such as total investment per cow, asset turnover ratio, debt to asset ratio and rate of return on farm assets (ROA), that utilizes long-term assets in the calculations are heavily influenced by land ownership and land values. High market land values can alter benchmark results. For example, land around a major urban area will have an increased cost per acre because of non-farm uses. In this scenario, it may be beneficial to

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

replace market land values with agricultural production value. If a producer has high market land values, it is recommended they calculate these benchmarks with both market and agricultural production values.

### Total Investment per Cow

$$\text{Total Investment per Cow} = \frac{\text{Total Assets}}{\text{Number of Cows (Average annual number of Lactating \& Dry)}}$$

**Target Value:** Between \$7,500/cow and \$15,000/cow

**Overview:** This benchmark gauges the value of the herd with regard to the total assets in the dairy. Because dairy herds consistently generate revenue, producers want to avoid a position where total assets restrict cash availability. If an operation is heavily influenced by noncurrent assets, this could restrict cash flow for the business. Land value can greatly affect this benchmark. This benchmark may give a clearer view of the operation if both market and agriculture land values are used to calculate investment per cow to see the difference.

Great	Watch	Investigate
Less than \$15,000	\$15,000 to \$20,000	Greater than \$20,000
The dairy is utilizing assets well.	Total investment per cow is restricting the benchmark value.	The producer should analyze noncurrent assets usage, unless the driving factor is land values.

### Asset Turnover Ratio

$$\text{Asset Turnover} = \frac{\text{Gross Revenue}}{\text{Total Assets}} * 100$$

**Target Value:** 35 percent or greater

**Overview:** This benchmark gauges the financial efficiency of the dairy. The goal is for the business to achieve the maximum amount of revenue from its assets. This benchmark could be used over time to analyze ratio trends. If the enterprise trends down, the producer should analyze assets and revenue streams. Land values could significantly influence this benchmark and should be considered when evaluating the final calculation.

Great	Watch	Investigate
Greater than 35 percent	35 to 25 percent	Less than 25 percent
The operation is financially efficient.	The operation's assets need to be analyzed, as the enterprise is not using the assets as efficiently as possible.	The operation is not utilizing its assets efficiently and asset structure should be analyzed. Typically, total investment per cow will be high as well.

## Debt to Asset Ratio

$$\text{Debt to Asset Ratio} = \frac{\text{Total Liabilities}}{\text{Total Assets}} * 100$$

**Target Value:** 40 percent or less

**Overview:** This benchmark measures the solvency of the dairy. Solvency refers to the operation's ability to cover term-debt. Debt to asset ratio is widely used to determine a farm's borrowing capacity. A high debt to asset ratio will make it difficult for a farm to secure new financing if there is a downturn in the milk market. A low debt to asset ratio will give the farm the ability to secure new financing during a down market or expand operations.

Great	Watch	Investigate
Less than 40 percent	40 to 60 percent	Greater than 60 percent
The dairy is solvent and can cover term-debt.	The business is becoming susceptible to a cash flow restriction if the market declines. The debt structure should be analyzed and total debt possibly reduced.	The operation is not solvent and is in position to be at great financial risk in a market downturn. The debt structure should be evaluated and consider selling underutilized assets to decrease debt.

## Debt to Equity Ratio

$$\text{Debt to Equity Ratio} = \frac{\text{Total Liabilities}}{\text{Total Equity}} * 100$$

**Target Value:** 50 percent or less

**Overview:** This benchmark is another measurement of solvency for an operation. This ratio gauges the operation's usage of debt versus equity to pay for operational needs. In general, businesses that rely on debt for operational needs are more at risk in a market downturn.

Great	Watch	Investigate
Less than 50 percent	50 to 150 percent	Greater than 150 percent
The business is very solvent and in good position in a market downturn.	The business is losing borrowing capacity and is gaining financial risk if the market declines.	The business is too reliant on debt to finance operations, and the farm is susceptible to greater financial risk if the market declines. Consider selling underutilized assets to decrease debt.

## Current Ratio

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

**Target Value:** 1.5 or greater

**Overview:** This benchmark gauges the liquidity of the dairy. Liquidity measures how quickly the operation could cover its short-term liability. For example, at a current ratio of 1.5, a farm will have 50 percent more current assets than current liabilities. The more liquid the enterprise the better. A common current asset for dairies is stored forage, such as silage. It can be difficult to market stored silage and it can be costly to transport, thus lowering its true market value. It is recommended producers do not over value these types of forage assets, as it will lead to a false sense of farm liquidity.

Great	Watch	Investigate
Greater than 1.5	1.5 to 1.0	Less than 1.0
The dairy has strong liquidity.	The liquidity of the dairy is vulnerable; the debt structure should be examined. This could also be from a point in time disruptions, such as a farm revenue stream that could self-correct.	The operation is not liquid and the debt structure should be analyzed because the farm is going to struggle to meet debt obligation over the next 12 months.

## Debt per Cow

$$\text{Debt per Cow} = \frac{\text{Total Liabilities}}{\text{Number of Cows (Average number of Lactating and Dry)}}$$

**Target Value:** Less than \$5,000 per cow

**Overview:** This benchmark indicates the level of borrowed funds used in the dairy enterprise on a per cow basis, as the cows generate income for the business. Heifers that have not calved should not be included because they have not generated revenue for the enterprise. High debt per cow will greatly affect profitability and susceptibility to a lower milk market. There are ways to address a high debt per cow ratio, such as selling off underutilized assets to lower debt. Increasing the herd size can possibly lower the debt per cow ratio, even though the producer will have to increase overall debt. For example, if a farm has 250 cows with a total debt of \$1.5 million, their debt per cow is \$6,000. If the farm can increase to 500 cows and only increase debt to \$2.5 million, their debt per cow will decrease to \$5,000. If a producer is wanting to expand, they should consult with their production and financial advisors.

Great	Watch	Investigate
Less than \$5,000	\$5,000 to \$10,000	Greater than \$10,000
The business is utilizing debt efficiently.	The producer should analyze their liabilities (current and noncurrent), as the producer might need to adjust their debt structure.	The producer should analyze their debt structure and herd size, as the farm's herd size is not offsetting the debt. If a significant portion of the debt is restructured operating cost from previous years, farm assets could possibly be sold to reduce debt per cow. Consult with production and financial advisors.

## Profitability Benchmarks

### Rate of Return on Farm Assets (ROA)

$$\text{ROA} = \frac{(\text{NFIFO} + \text{Farm Interest} - \text{Operator Management Fee})}{\text{Total Assets}} * 100$$

**Target Value:** Five percent or greater

**Overview:** This benchmark is a profitability gauge for the dairy. If the operation is being efficient with its assets, this gauge will be most impacted by the management fee and Net Farm Income From Operations (NFIFO).

Great	Watch	Investigate
Greater than five percent	Five to one percent	Less than one percent
The dairy has great profitability.	The cost structure and total assets should be evaluated. Could be a suppressed revenue stream, and this becomes problematic if lasting multiple years.	The operation is not profitable. This could result from bad returns on assets, low income or a high operator management fee. Asset turnover ratio and revenue stream should be investigated. High land values (rented or leased) could influence this ratio.

## Operating Profit Margin

$$\text{Operating Profit Margin} = \frac{(\text{NFIFO} + \text{Farm Interest} - \text{Operator Management Fee})}{\text{Gross Revenue}} * 100$$

**Target Value:** 25 percent or greater

**Overview:** This benchmark is a profitability gauge for the farm. If the farm has a great revenue stream and is has low costs, this benchmark will show its profitability. Additionally, if the dairy’s operation is being financed through equity and gross revenue, and not through debt, it is likely that the dairy will have a great operating profit margin.

Great	Watch	Investigate
Greater than 25 percent	25 to 15 percent	Less than 15 percent
The dairy has great profitability.	The dairy’s cost structure should be analyzed as gross revenue is probably not covering all expenses.	The enterprise is not getting good return on investment and the cost structure and revenue stream need to be analyzed. When an operation is in an unfavorable profitability position, they are at great risk in a market decline.

## Conclusion

Dairies that utilize the balance sheet benchmarks suggested in this publication can identify potential financial issues. By identifying benchmarks in the watch column, producers can proactively adjust their cost structure, asset structure and liabilities before moderate problems become major financial issues. Additionally, understanding and correcting problematic financial ratios will assist in producers being able to access financing and obtain beneficial terms and conditions.

Calculating these benchmarks after every fiscal year allows producers to capture trends in the financial statements. Capturing and understanding trends will allow the enterprise to strategically plan for moving toward the “Great” column. Benchmarking can be done versus the operation’s past performance and peers in the industry. By combining the balance sheet benchmarks with the dairy non-feed and income and expense benchmarks and the dairy feed benchmarks, the dairy enterprise can plan to also be as efficient and financially stable as possible, regardless of size.

The two complementary publications are:

- Dairy Non-Feed Income and Expense Benchmarks W 979
- Dairy Feed Benchmarks W 980

## References

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