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# Dairy Feed 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' 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 dairy feed benchmarks.

Total feed cost is the summation of purchased feed and produced forage costs and can represent up to 60 percent of dairy production costs. Total feed costs vary based on rations developed by the dairy's nutritionist and production structure of the farm. Regardless of herd size, managing feed costs, which are either bought or produced, is essential to the enterprise's long-term financial health (Shoemaker et al., 2009). By including both purchased feed and produced forage costs into the benchmarks below, dairies can analyze the feed cost balance needed for their dairies.

Forage quality and feed values can vary greatly, thus it is important to test grown or purchased forages on a regular basis and utilize a nutritionist to balance the rations according to forage analyses. To better evaluate the total feed program, farmers are encouraged to regularly test their produced forages and other feeds. It is important to note that low quality forages can have short- and long-term negative impacts on farm profitability by reducing milk quality and animal health. This results in decreased animal efficiency and consequently, reduces farm efficiency. For a dairy to be sustainable, annual total feed costs should not exceed 60 percent of total milk cost. When looking at total feed and purchased feed benchmarks, the producer should consider their forage production structure. Purchased feed costs can be influenced by on-farm forage production. Depending on the amount and quality of the forages produced on the farm, a producer might or might not have to purchase more feed. For example, if a producer has a large amount of high quality forages, they will reduce their purchased feed expense.

The benchmarks below utilize gross farm income and annual milk price per hundredweight (cwt). By incorporating these revenue streams, the benchmark allows for producers to analyze the impact of feed costs from a whole farm (gross farm income) perspective and a marketing (milk price per cwt) perspective (Cross, 1997).

It is important to note that the following benchmarks are heavily influenced by milk price and feed costs. High milk prices can skew benchmark results and shield possible cost inefficiencies. Conversely, depressed milk prices may overstate cost inefficiencies. Utilizing risk management tools such as Dairy Margin Coverage (DMC), dairy risk protection insurance, usage of futures or options can help address milk market shocks. Using risk management tools, such as on-farm storage, forward contracts, futures or options can mitigate some fluctuations and shocks in feed prices.

## The Benchmarks

### Total Feed Cost

$$\text{Total Feed Cost} = \frac{(\text{Purchased Feed Cost} + \text{Produced Forage Cost})}{\text{Gross Farm Income}} * 100$$

**Target Value:** 60 percent or less

**Overview:** The benchmark gauges the impact of total feed costs on the enterprise's gross income. As producers find a balance of purchasing feed and growing commodities for their rations, it is important that they do it cost effectively. Forage costs are any expenses associated with forages grown on the dairy. Relying heavily on one or the other could present risk to the dairy if there's a drought or if purchased feed becomes too expensive.

Great	Watch	Investigate
Less than 60 percent	60 to 65 percent	Greater than 65 percent
The farm's feed costs are under control.	The farm's feed costs are slightly elevated. Evaluate the nutrition program and forage quality.	The farm's feed costs are too high. Consult with the nutritionists and evaluate the forage program. High total feed cost will limit the ability to meet other financial obligations.

## Purchased Feed Costs

$$\text{Purchased Feed Costs (\% of total income)} = \frac{\text{Purchased Feed Cost}}{\text{Gross Farm Income}} * 100$$

**Target Value:** 45 percent or less

**Overview:** This benchmark gauges the impact of purchased feed on the enterprise's gross farm income. In general, if the dairy is growing more feed on the farm, this benchmark will be favorable for the enterprise, due to lower purchased feed expense. While most dairies will probably buy feed to help develop heifers or feed non-lactating cows, the farm does not want to be too heavily dependent on purchased feed since purchased feed costs can fluctuate.

Great	Watch	Investigate
Less than 45 percent Total Feed Costs are less than 60 percent	45 to 50 percent Total Feed Costs are less than 65 percent	Greater than 50 percent
The dairy has its purchased feed costs under control.	Purchased feed costs are elevating and the producer should consult with the dairy's nutritionist and evaluate the forage program.	Feed costs are greatly elevated and the producer should evaluate purchased feed costs and consult with the dairy's nutritionist. High purchased feed cost will limit the ability to meet other financial obligations.

## Milk Income over Feed Cost (IOFC) (Percent)

$$\text{IOFC (\%)} = \frac{\text{Annual Milk Price per CWT} - (\text{Total Feed Cost per CWT})}{\text{Annual Milk Price per CWT}} * 100$$

**Target Value:** 40 percent or greater

**Overview:** Due to feed costs consuming a large portion of dairy expenses, it is important to analyze milk income versus feed costs at the cwt level. If feed costs are high, the dairy loses profitability from their milk revenue. This gauge is another way of checking profitability between the revenue stream of milk and the dairy's largest expense (feed). This measurement is evaluated in dollar form by subtracting total feed cost per cwt from annual milk price per cwt.

Great	Watch	Investigate
Greater than 40 percent	40 to 35 percent	Less than 35 percent
The farm's IOFC is strong.	The farm's feed costs are slightly elevated. It is recommended to analyze the nutrition program and forage quality.	The farm's feed costs are too high and the IOFC is weak. Consult with the dairy's nutritionist and evaluate the forage program.

## Returns per \$100 of Feed

**Target Value:** Increase or maintain returns annually (unless there are major shocks in the dairy market or cost structure)

**Overview:** While these measurements are not true benchmarks, they are useful gauges to help identify feed efficiencies. A key advantage to these ratios is that they incorporate the largest income source against the largest expense. Major limitations to these measurements are fluctuating milk price, feed cost and inflation over time. If there is a major shock in milk or feed price, it will make it difficult to compare to prior years. These measurements look at how efficiently the nutrition program is generating revenue. If returns per \$100 of feed increases over time, it indicates the dairy is being more efficient with the nutrition program. The two different measurements to evaluate returns per \$100 of feed are shown below, each giving the farm a different perspective.

**Milk Returns per \$100 of Total Feed** – This measurement evaluates milk returns against purchased feed and forage cost. This will give the farm the ability to evaluate the total nutrition program.

$$\text{Milk Returns per \$100 of Total Feed} = \left( \frac{\text{Milk Income}}{\text{Total Feed Cost}} \right) * 100$$

**Milk Returns per \$100 of Purchased Feed** – This measurement evaluates milk returns against purchased feed. It will let the farm evaluate the feed supplement program over time.

$$\text{Milk Returns per \$100 of Purchased Feed} = \left( \frac{\text{Milk Income}}{\text{Purchased Feed}} \right) * 100$$

## Conclusion

Dairies that utilize the feed benchmarks suggested in this publication can identify potential issues with the dairy's largest expense. Benchmarks in the "watch" column can help farmers proactively adjust their nutritional programs. This can be done over time by improving forage production, adjusting purchased feed types or amounts, and working with their nutritionist to identify the most efficient ration for their operation. 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 feeding benchmarks. Capturing and understanding trends will allow the enterprise to strategically plan for moving toward the "Great" column. By combining the dairy feed benchmarks with the dairy balance sheet and profitability and dairy non-feed income and expense benchmarks, the dairy enterprise can plan to be as efficient as possible regardless of size.

The two complementary publications are:

- Dairy Non-Feed Income and Expense Benchmarks W 979
- Dairy Balance Sheet and Profitability Benchmarks W 981

## References

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.



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