

## PROFIT SEMINARS

By Betsey Howland and Jason Karszes

# Understanding net milk income over feed costs and its impact on profitability

The economics of dairy farming are ever changing. As farms grow and change, and as high and low milk price cycles are experienced, it is important to continually monitor farm operating performance to maximize profits and determine if progress is being made. The feeding program is a critical management area as it makes up the biggest cost on dairy farms and has a direct impact on milk production. Several measures can be used by farms to evaluate feed costs and the overall feeding program, but which one is most critical to determine profits?

Traditionally farmers have looked at purchased grain costs per cwt of milk sold, grain costs as a percent of milk sales or feed costs per head per day. None of these factors go very far to explain the variability in profitability as measured by return on assets. The more important factor to look at when evaluating the feed program is Net Milk Income Over Feed Costs (NMIOFC). More specifically, it is best to look at NMIOFC per cow as it explains the variability in profits on farms. Figure 1 shows the factors discussed and how they have correlated to profitability over the last 12 years.

NMIOFC per cow reflects the money that is available to cover all additional expenses on the farm after feed costs are paid. NMIOFC can be calculated using just purchased feeds, grain costs or using total feed costs. NMIOFC per cow is a more accurate value as the cost of purchased grain and concentrates on the farm can be determined. It is more difficult for most farms to determine the cost to raise their own forages. However, measuring NMIOFC is more representative of what is occurring in the herd as ration changes are

## NMIOFC per cow can track feeding program performance over time.

made.

The NMIOFC index captures fluctuations in milk price, feed costs and milk production. This tracks overall feed program performance, not just cost or output. Several different factors impact NMIOFC daily on dairy farms. Some of these include: milk price, pounds of components (pounds of milk x % components), feed conversion rate, and overall feed costs. Of these factors, the one that explains the most variability in NMIOFC

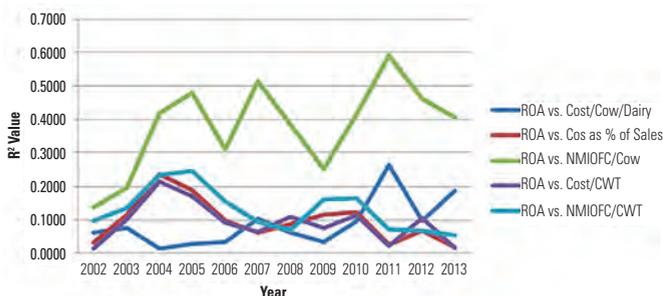
is pounds of components (butterfat and protein) per cow per day. The R-squared values for components were the highest of all factors in 2013 and 2014, with 0.56 in 2013, and 0.70 in 2014. The more pounds of components each cow produces in a day, the higher potential for increased NMIOFC, thus leading to greater returns.

The factor with the second highest influence on NMIOFC per cow per day is feed conversion, with R-squared values of 0.53 in 2013, and 0.56 in 2014. How well cows convert feed into milk can have a large impact on NMIOFC.

The last two factors that impact this measure are milk prices and cost of feed. While these are important, they are more outside of the control of management and have less impact on the total income over feed costs, as represented by R-squared values of less than 0.19 for 2013 and 2014.

NMIOFC on farms can be tracked in several ways, including on-farm spreadsheets, use of feed management software or use of the Dairy Profit Monitor. The Dairy Profit Monitor is an online tool that measures NMIOFC on a monthly basis and tracks other key herd management factors. Because of the variability of milk price in the dairy industry, the Dairy Profit Monitor is set up to measure NMIOFC in two ways: using current milk price received and using a fixed milk price. By using a three-year average value for butterfat, protein and other solids, along with milk marketing costs, the variability of milk price from month to month is removed. Fixed NMIOFC is influenced strictly by changes in production, feed usage or feed costs. Using the fixed milk price factors, a farm can determine if operating performance progress is being made, regardless of milk prices changes. For more information about the Dairy Profit Monitor, visit [www.dairyprofit.cornell.edu](http://www.dairyprofit.cornell.edu). Information on how to

Figure 1. Relationship as defined by R-squared between various feed program measures and return to all capital from 2002-2013.



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# THE MANAGER

## Thinking about building a barn? *continued from page 23*

the appropriate grade?

- What are the flow patterns if cows will move to and from the facility every day? What type of driveway or walkway will be required to handle vehicle and animal traffic?

- What are the overall farmstead air flow patterns? How will this barn affect odors experienced by neighbors? Will this barn contribute to the aerosol transfer of manure pathogens or disease from older animals to younger or other more susceptible animals?

- Where are the current power and water lines in relation to the proposed facility? What is the capacity of these lines compared to future farm plans?

### Working with a contractor

Many aspects of dairy facility construction projects, such as concrete and electrical work, and milking system and barn equipment installation, can be handled by subcontractors. Having a good general contractor oversee the project can alleviate stress and ensure that all of the components in the barn project are built to the farm owners' expectations. When working with a new contractor ask for references of other similar barns they have built. Try to visit some of these farms. How do the structures look? Talk to the owners and ask how the contractor was to work with? Is there anything they would change in their designs?

Another thing to consider when working with a contractor is the

preparation of specifications for the design. This should be a signed contract between the farm owners and the contractor that outlines materials and quality of the finished structure. This contract can also specify a start and finish timeline for the project. Barns can represent a significant financial investment. Having specifications written and agreed upon before construction begins ensures that expectations are outlined and that the farm owners get what they are paying for.

Some people act as their own general contractor. This can save some cost if the person has extra time to devote to this task. Some people can successfully handle this, but most dairymen do not typically have a lot of extra time available. With larger construction projects, many tasks, including coordinating subcontractors, need to be accomplished. When thinking about self contracting, the true cost of time and focus away from the dairy operation needs to be considered. Generally, the added cost of having an outside contractor handle the project is worth it.

### Conclusion

Long-term planning isn't always a fun exercise, but it is vital to the survival of a dairy business. With proper planning a new facility can be a smart investment that provides a comfortable, efficient, productive and profitable environment for animals and employees. □

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get started and other resources are under the "Help" tab.

Strong operating performance is a key to profitability on dairy farms. Measuring and monitoring NMIOFC per cow is important to

determine whether the feeding program is improving over time on the farm. □

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Figure 2. Relationship between pounds of butterfat and protein per cow per day and Net Milk Income over Total Feed Costs.

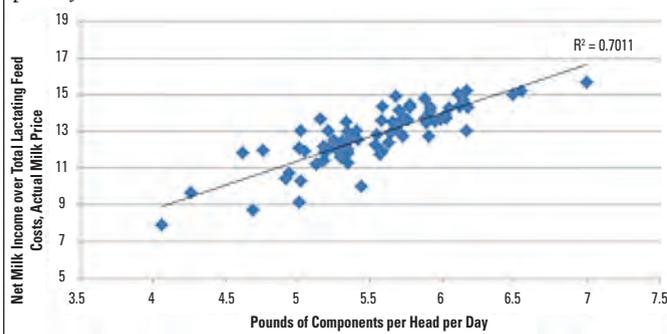


Figure 3. Relationship between feed conversion (pounds of energy corrected milk per pound of dry matter fed) and Net Milk Income over Total Feed Costs.

