



YOUR LINK TO PROFIT

# Maximizing Feed Efficiency



The more things change, the more things stay the same. This statement is as true in the dairy business as it is anywhere else. Dairy has seen many changes over the years, from horses to tractors and pencil and paper to computers. But several goals have essentially remained the same: to make more, cheaper, easier and with less labor.

Perhaps nowhere is this more true on the dairy operation than in feeding. With feed accounting for 20% to 40% of the milk check (depending on the forage program and feeding system), optimizing it can have a significant impact on the bottom line.

The Total Mixed Ration (TMR) system for feeding dairy cows continues to increase in popularity. The theory behind the TMR is that a dairy cow will achieve

optimum feed efficiency in that each mouthful of feed contains the right amount of ingredients for a balanced ration. Another advantage is that different rations can be formulated for various production groups. In addition, feeding a TMR requires less labor as the feeding operations are mechanized. Mixers can be purchased to achieve fast processing and to handle large, round bales of hay. And today's mixers are available in low profile sizes to be easily loaded with any standard size skid steer - the ever present and versatile workhorse on the farm.

The feed efficiency ratio is simply the number of pounds of milk production per pound of dry matter intake. The higher the ratio, the greater the efficiency and the lower your feed cost on a hundredweight-of-milk-produced basis. Mike Hutjens, Dairy Extension Specialist at the University of

*continued...*



Illinois, figures that the average feed efficiency achieved by farms today is around 1.3 to 1.4. Hutjens says a dairy producer can achieve a ratio of 1.7 or higher, but it depends on doing a number of things right. Some key factors include:

- Pay attention to chop length. This has a definite impact on cud chewing, rumen pH and overall rumen efficiency. Hutjens says he likes to see 10 to 15% of the TMR settle out in the top box of the Penn State Forage Particle Separator. He also likes to see 40 to 50% of the TMR settle out in the second box of the new four-box Penn State particle separator that captures particles 0.3 to 0.75 inches in length.
- Promote rumen efficiency. Hutjens says that in order to get high feed efficiency, you have to get extremely good rumen fermentation. He advises to provide the cows with adequate amounts of effective, or "chewable," fiber in the ration.
- Reduce stress on the animal, like cold stress, heat stress, or activities that leave less energy for milk production.
- Feed high quality, highly digestible forage. Research from Michigan State University published in the Journal of Dairy Science showed a 1 percentage point rise in neutral detergent fiber digestibility (dNDF) correlates to a 0.37-pound increase in dry matter intake and a 0.55-pound increase in 4%-fat corrected milk.
- Have your forages lab tested every two to four weeks to reduce variation in TMR ingredients coming from forage moisture, cutting, storage and feed-out management.

So what's happening when you balance your TMR to achieve optimal production, but are getting significantly less? Beyond TMR ingredients, several other things can contribute to ration variation, including inaccurate loading, mixing and distribution. It can also occur due to sorting by the cows. To determine if there is sorting, watch the cows. Hutjens says sorting is occurring if they nuzzle feed, push it back and forth, create deep holes in the TMR or reach for feed out-of-reach when other feed is right in front of them. He offers several suggestions to minimize sorting:

**TMR management is as much of an art as it is a science.**

- Shorten long-forage particles to 1 to 2 inches in length or reduce the amount, providing the ration has enough effective fiber.
- Improve forage quality to increase palatability and intake.
- Add 5 to 10 pounds of water, especially if the TMR is over 60% dry matter.

- Feed smaller amounts of TMR more frequently each day to minimize sorting at each feeding.
- Add "sticking" agents, such as molasses or condensed whey.
- Shift to plant-processed corn silage with 3/4" theoretical length of chop to reduce cob sorting.

When you get right down to it, proper TMR management is as much of an art as it is a science. Several software programs are available commercially to help dairy producers formulate their ration and feeding strategies. Some of the more common ones include TMR Tracker<sup>®</sup> from Digi-Star, 920-563-1400, [www.digi-star.com](http://www.digi-star.com); EZfeed<sup>™</sup> from DHI Computing Service, Inc., 801-373-8518, [www.dhiprovo.com](http://www.dhiprovo.com); Feed Supervisor<sup>®</sup> from Feed Supervisor Software, 715-755-3575, [www.feedsupervisor.com](http://www.feedsupervisor.com); and Feed Watch<sup>™</sup> from Valley Agricultural Software, 559-686-9496, [www.vas.com](http://www.vas.com). Additionally, Hoard's Dairyman has a booklet entitled, "Successful Feeding Systems for Dairy," by Mike Hutjens available for \$9.00. Contact Book Department, Hoard's Dairyman, P.O. Box 801, Fort Atkinson, WI 53538-0801, or visit [www.hoards.com](http://www.hoards.com).



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## Maximizing Efficiency to Maximize Profits

If milk is produced efficiently it should also be profitable in that its per unit cost of production is lower. Efficiency and profitability are closely related; improvements in one usually correspond to improvements in the other. Return on assets (ROA) provides a measure of both. Here's how it's calculated:

$$\frac{\text{Net income} + \text{Interest expense} - \text{Value of family labor}}{\text{Total farm assets}}$$

What it tells you is the percentage return to the assets invested in the farm, both by the owners and creditors. Taken another way, it's a measure of how well farm assets are being employed to generate a return. Interest expense is added back to net income because it represents a return to debt assets. The value of family labor (often shown as family living expenses) is deducted because it represents a withdrawal from net income.

According to the article, "Pass these five financial tests for long-term success" by Bradley J. Hilty appearing in the August 10, 2003 issue of Hoard's Dairyman, many dairy businesses

average between 2 to 4 percent ROA. This means that every \$100 in farm assets returned \$2 to \$4 to the business. According to the article, top performing dairy businesses consistently earn 12 to 15 percent or better ROA. Hilty suggests that a good benchmark to target is 8 to 10 percent.

To improve ROA, examine its components. A higher net income (all else constant) will result in a higher ratio. Net income is simply sales less related expenses. There is research to show that more efficient farms tend to spend more per cow on expenses related to cow comfort and purchased feed, and on average, farms with higher-producing cows achieve higher profitability. Focusing on the feed efficiency ratio (see cover article) and related factors, such as forage quality and cow comfort, is one way to generate more sales per unit of input and thereby improve your ROA.





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## A BIT OF FUN



The school of agriculture's dean of admissions was interviewing a prospective student, "Why have you chosen farming as a career?" he asked.

"Like my father, I dream of making a million dollars in farming," the student replied.

"Your father made a million dollars in farming?" echoed the dean much impressed.

"No," replied the applicant. "But he always dreamed of it."

Taken from ArcaMax, Inc.

