Should feed efficiency be used in dairy benchmarking?

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Dairy producers have used at least some form of benchmarking for many years as a way to measure their success. Historically, benchmarking has been somewhat of an informal process of discussing milk production, components, classification, profitability, nutrition programs, management theories, and many other items at the sale yard, small town diner, cattle show, or other “industry events.” Of course, more formal benchmarking has been conducted by DHIA and through varying breed organization programs.

In recent years, benchmarking has delved into many more business-oriented topics such as debt per cow, cows per worker, cost of production, net farm income, and other financial ratios. Thus, dairy benchmarking has progressed from a simple way to “keep us with the Joneses” into an effective tool to improve an individual dairy’s management. Today’s dairy benchmarking more closely adheres to Webster’s definition of benchmarking as “the study of a competitor’s product or business practices in order to improve the performance of one’s own company.”

One item that deserves serious consideration is both formal and informal dairy benchmarking is a term that is quite contradictory to conventional dairy wisdom – feed efficiency. Feed efficiency is simply defined as yield of milk per unit of dietary dry matter consumed. It is a measure of how efficient cows convert consumed nutrients into products (milk, muscle, fat, and calves). But, we all know that the key to increasing milk production is to increase dry matter intake, right? To a point, this statement is true. The contradiction comes in the fact that not every pound of dry matter is created equal. Our friends in the beef, swine, and poultry industries have successfully used feed efficiency as a benchmarking tool for decades and scoffed at how we have ignored this simple concept.

Recently, dairy scientists have started to take another look at how dairy operations can benefit from measuring and evaluating feed efficiency. The low milk prices observed in recent years provided the impetus for re-evaluating many traditional dairy practices as producers searched for ways to improve efficiency. What they have found is that the old dogma of doing whatever it takes to increase dry matter intake, may not have been correct.

Think back to when you were in school and consider the way you studied for an exam. Once school of thought would argue that the more you studied the higher your grade would be. Thus, studying three hours for the exam would be better than studying one hour for the exam. However, let’s say the your options are to study three hours for the exam while watching a movie and eating dinner or to study one hour uninterrupted and unimpaired by outside distractions. In all likelihood, the one uninterrupted hour would lead to better results on the exam resulting from more efficient studying. The concept that more is not always better is the basis for the renewed interest in feed efficiency.

When calculating feed or “dairy” efficiency, pounds of milk should be adjusted for fat levels (a simple equation to use to correct milk production to a 4% fat-corrected milk is FCM=0.4 x lbs milk+15 x lbs fat). Dry matter intake should accurately reflect the feed that the cow actually consumed. In order to accomplish this, intakes must be adjusted by subtracting feed refusals.

For many dairy producers, obtaining accurate dry matter information is the biggest challenge to calculating feed efficiency. If an inaccurate number is used for dry matter intake, the feed efficiency calculated holds very little value as the old adage “garbage in, garbage out” prevails. Having accurate dry matter intake information provides value well beyond its use in calculating feed efficiency.

Dr. Mike Hutjens, Extension Dairy Specialist with the University of Illinois, has noted that feed efficiency values in the field may vary from 1.1 to 2.0. Herds that are fed a one-group TMR will range from 1.4 to 1.6, while high producing early lactation cows may approach 1.8. He suggests that a feed efficiency value greater than 1.7 would be considered excellent, while a value less than 1.3 may suggest that something is amiss. When feed efficiency values approach 2.0, it is important to observe the cows to insure that they are not losing excessive amounts of body condition. Particularly, high feed efficiency values may be a sign that cows are relying too heavily on body reserves to support high levels of milk production.

What factors influence feed efficiency on a dairy? Research by Dr. Jenks Britt from Western Kentucky University published in 2003 examined these issues.

Dr. Britt demonstrated that lower dairy efficiencies were correlated with increasing days in milk, forage %, amount of forage, NDF, and ADF. He also found that dairy efficiency was higher in cooler weather than in warmer weather.

Not surprising, dairy efficiency was positively correlated with milk production. Although this topic has not been heavily researched, limited controlled research and field observations have noted other influential feed efficiency factors.

Increased dairy efficiency has been associated with higher milk yields, fewer days in milk, body condition loss, increasing age of cattle, high quality forages, improved feed digestibility, improved rumen fermentation, use of dietary buffers and yeast cultures, use of rBST, and higher genetic merit. Decreased dairy efficiency has been associated with greater days in milk, decreasing age of cattle (more cows utilizing nutrients for growth), gain of body condition, ruminal acidosis, pregnancy, excessive walking, and challenging environmental conditions. Consequently, the following practices have been suggested as ways to increase feed efficiency: Managing breeding programs to reduce average days in milk, providing a properly balanced ration, improving forage digestibility, improving NDF digestibility, providing adequate effective fiber, stimulating rumen fermentation, minimizing ration sorting, utilizing feed additives (i.e. rumen buffers, yeast cultures, silage inoculants), using rBST, minimizing the effects of extreme temperatures (cold or heat stress), closely monitoring close-up and fresh cows, minimizing cow stress, maximizing cow longevity, selecting high genetic merit bulls for breeding.

Using feed efficiency as a dairy benchmarking tool may prove to be useful in improving the profitability of your operation. To demonstrate this point, let’s say that you and your neighbor both average 70 pounds of fat corrected milk per cow per day, but your neighbor achieves this with 50 pounds of dry matter while your cows are eating 55 pounds of dry matter. Assuming that a pound of dry matter costs about seven cents, you are leaving 35 cents per cow per day on the table without any additional returns. On a 1000-cow dairy, this would add up to a potential loss of nearly $130,000 a year. Is this a number you can afford to lose? Maybe feed efficiency is worth taking another look at.

References:


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