



Dairy efficiency measures and the effects of nutrition and feeding management

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EDITORIAL NOTE

Economists, nutritionists, and geneticists have described dairy cattle efficiency in simple, quantifiable terms. On-farm measures of dairy efficiency, physical feed efficiency, efficiency of nutrient usage, economic feed efficiency, total dairy enterprise efficiency, and lifetime efficiency are included. Each measure of dairy efficiency has its own advantages and limitations. Use of multiple dairy efficiency metrics, with a moving target specific to the individual dairy enterprise, should be considered. Nutrition and nutrient management can improve the use of dairy resources, increasing both economic and environmental sustainability. With greater DMI and milk yield, a smaller proportion of dietary nutrients are used for maintenance functions, improving productive efficiency and reducing the environmental impact of the dairy cow. Nutritional factors independent of cow genetic merit affect energetic losses within the sort of feces, heat of digestion and metabolism, or methane.

Improvements in nutrient retention can occur with increases in rate of digestion and decreases in rate of passage of feed ingredients. Forage and grain losses, feed ingredient options, and forage and feed ingredient targeting consistent with cow potential got to be considered. Consistency of delivery and consumption of the formulated ration without high feed refusal rates typically improves dairy efficiency. Cow grouping affects social behavior, cow well-being, nutrient wastage, milk yield, and expenses, with optimum strategies being farm specific.

Sustainable dairy production must return a profit for the dairy enterprise and produce quality milk for consumers while maintaining optimal cow well-being and practicing environmental stewardship. Feed typically accounts for 50 to 60% of the operating expenses on a dairy, making it a logical focus when trying to extend efficiency. Yet, high milk production, which needs proper nutrition, typically generates more profit than low feed cost. The economic objective of the farm is to maximize net economic returns while converting a greater percentage of feed nutrients into milk with little nutrient wastage.

In present marketplace, sustainability is a new indicator of quality. It can be tempting to use dairy efficiency metrics to address consumer and retailer questions about sustainability. Although each measure has merit for describing a segment of dairy efficiency, nobody measure can entirely describe a dairy's efficiency or be applicable across all farms. Each measure of dairy efficiency has its own advantages and limitations. Dairy efficiency goals should be considered to be moving targets that are specific for the present situation of individual dairy enterprises with the main target placed on continuous progress.

On-farm dairy efficiency measures are often useful instruments to gauge changes in nutrition and management on the dairy. Each on-farm dairy efficiency measure has both advantages and limitations. Each is often informative, but they supply more appropriate guidance when examined simultaneously instead of in isolation.

Dairy efficiency goals shouldn't be viewed as fixed but as moving targets specific to the present conditions of every dairy enterprise. For these reasons, individual farm dairy efficiency measures aren't recommended to directly address consumer and retailer questions on sustainability.

Nutrition and feeding management have major effects on dairy efficiency. Dairy managers and

nutritionists got to carefully consider diet digestibility, rumen function, feed analyses, nutrient requirement estimates for various animal groups, forage selection and associated agronomic considerations, forage preservation, as well as TMR preparation, delivery, and intake to define reasonable dairy efficiency targets and production goals for individual farms that will lead to greater economic and environmental sustainability.