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Feeding for milk yield versus solids

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This issue examines why maximizing milk yield versus maximizing milk solids are not necessarily the same nutritional objective and argues that dairy nutrition should ultimately align with how milk is valued by the market being served.

One of the recurring issues I have encountered while working with dairy farms over the years is the confusion surrounding what producers are actually expected to optimize.

The answer often seems straightforward: produce more milk.

But in practice, it is rarely that simple.

Many dairy producers receive mixed signals from buyers and processors. Sometimes these expectations even change when milk contracts change or when milk is sold to a different processor.

One processor rewards volume. Another rewards solids. One market values fluid milk. Another values cheese or butter yield.

As a result, producers are often left asking a fundamental question: ***should I be feeding cows to maximize milk yield, or should I be feeding cows to maximize milk solids?***

And the answer is that these are not always the same objective.

The cow responds to nutrients

Nutritionists often discuss corn, hay, or soybean meal, but the cow ultimately responds to nutrients and fermentation products generated inside the rumen. Everything eventually feeds into common metabolic pathways that support maintenance, reproduction, and milk synthesis. The same ingredients can therefore produce different results depending on how they are balanced and how they interact inside the animal.

Fiber supports milk fat production

Fiber fermentation favors acetate production, one of the main precursors for milk fat synthesis. High-forage diets generally support higher butterfat percentages. This does not mean that more fiber is better, but it does explain why maximizing milk volume and maximizing milk fat are not necessarily the same nutritional objective.

Starch supports milk volume

Cereal grains increase propionate production in the rumen. Propionate is converted into glucose by the liver, and glucose is essential for lactose synthesis. And, lactose largely determines how much water is drawn into milk.

Thus, nutritional programs that favor propionate often increase total milk yield. High production, however, may come at the expense of milk solids percentage.

Nutrition is a balancing act

Modern dairy nutrition is rarely about maximizing a single parameter. Increasing milk volume too aggressively may reduce solids, whereas excessive focus on solids may limit production potential. The objective is to find the balance that best matches the biology of the cow with the economics of the production system.

The market determines optimization

Not all milk has the same value. Fluid milk markets often reward volume, whereas cheese manufacturers place much greater emphasis on fat and protein yield. As producers change processors or milk contracts evolve, nutritional priorities will also change. The most profitable ration is therefore not necessarily the ration that produces the most milk.

Systems should optimize value

Too often, nutrition programs are judged only by kilograms of milk produced. But dairy farms are businesses, not biological experiments. The objective is not maximizing milk yield or maximizing solids in isolation. The objective is maximizing the value of the milk produced according to the requirements of the market being served.

In brief, one of the most common mistakes in dairy nutrition is assuming that more milk automatically means more profit.

But not all milk is created equal.

The most successful dairy systems first understand what their market values and then align nutrition with that objective.

Because feeding for milk yield and feeding for milk solids are not necessarily the same thing.

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