

## Managing Variation in Feeding

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Variation is inevitable. In nearly all aspects of life, variation is as certain as taxes and death. Temperature, humidity, our moods, milk prices; just about everything inherently includes some degree of variation. In some things, variability may be the only constant. My column this month is going to focus on the variation associated with feeding dairy cows. We will review the negative impact that this variation can have on cow health, feed intake and milk production.

Think about the activity in the rumen of a cow as a manufacturing process. In this process, raw ingredients such as corn silage, hay and grains are delivered to the manufacturer 8-10 times per day. We know that cows will eat multiple times per day in an ideal situation. Each of these meals is a new delivery of these raw materials to the workers in the rumen. She has employed a workforce of rumen microbes to process these raw ingredients into more valuable compounds such as microbial protein and volatile fatty acids. This is important to milk producers because the microbial protein is needed to build milk protein and the fatty acids are key in the synthesis of milk fat. Since the sale of milk protein and milk fat are the primary income generators for a dairy, this conversion of raw materials to sellable products is a pretty important process for a dairy producer.

The rumen microbial population is quite specialized in its task. If you consistently deliver the same mix of raw ingredients, the microbes are amazingly efficient in their job of converting them to amino acids and fatty acids. However, if the raw ingredient delivery is highly variable, the microbial population is in constant flux. The overall population dynamics of different types of microbial species adjust to a particular diet to maximize rumen health and fermentation. This process of change and adjustment could become more the norm in a constantly changing rumen as it attempts to adjust to the variable raw ingredients present. Some microbes are specialist in breaking down the fibrous material that comes from forages. Other of these species specifically break down starch that comes from the grain portion. Obviously, this description is a simple one and in actuality it is much more complicated. The take home message though is simple. If the rumen microbial population is constantly working to produce different populations of bugs for a highly variable diet, efficiency struggles. The result is a manufacturing process that is neither efficient nor supportive of good cow health.

Dry matter intakes are also highly dependent on consistency, or lack thereof. If the feed is constantly in flux, intakes will be up and down. Cows are heavily influenced by the olfactory sense. The smell of the feed will have about as much impact on their willingness to consume it as taste and texture. If variability in the areas of smell, taste and texture is minimized, dry matter intake will be more consistent.

Cows are amazing creatures and slight variation in feedstuffs or mixing errors are handled without much negative impact. However, when a particular feedstuff is highly variable, or a feeder struggles to add the correct amount of ingredients at the same time each day, the cow will pay the price. Her rumen does

not handle these changes very well. Additionally, even if the correct amount of each ingredient is added, if the load is under or over-mixed, similar negative issues within the rumen can occur.

I think we often underestimate the impact these variations on cow health. Cows that are challenged with these feeding variables may not make the necessary adjustments internally and as a result may go “off-feed”. There is a point at which the rumen cannot handle the variability and the result can be a non-functioning rumen. This “off-feed” cow may have a rumen that can’t be restarted. Or, she may end up with a displaced abomasum. In either case, her ability to produce milk has been seriously damaged.

We realize in an industry with changing feeds, weather and people, that some variation in feeding cows is unavoidable. However, the more we can work to minimize variation the more constant the response will be from the cows. Cows don’t like change, or maybe more correctly stated – the rumen microbes perform at their best when variation is minimized.

Minimize variation, improve production – the benefits will go “Straight to Your Bottom Line”.