



It takes a team to ignite the rumen

WHETHER it's the celebrated song rooted in tradition coming through the loudspeakers prior to the fourth quarter at the football stadium, the crack of the bat for a hit with bases loaded in a tightly contested playoff baseball game, a slam-dunk by the superstar during a momentous run in a basketball game, or a golfer sinking a critical putt on the 18th green to win a tournament . . . each of these situations will ignite a crowd.

The energy potential in the crowd is there throughout the game or match. However, it's a specific spark at a pivotal moment that unleashes the positive energy and emotions within the crowd. The fans come together and the immense potential is recognized, with cheers, high-fives, and a raucous environment to follow in celebration.

As I write this, I've got goosebumps reflecting back on games and events that I've attended where I've been part of the crowd in a frenzied celebratory state. In fact, I've come home from playoff games without a voice thanks to cheering following these igniting moments. If you've been to a game or match like those described here, you understand these moments well.

Believe me when I comment that the rumen is very similar to a packed crowd, brimming with energy and potential. However, for the energy to be unleashed, we need a spark for ignition.

Each plays a role

The rumen is like a sophisticated play with different team members acting in synchrony to achieve success. Various rumen microorganisms digest different nutrients and all depend upon one another to thrive.

There is a cascade of nutrient digestion, with those metabolizing more readily digestible nutrients providing fuel and metabolites for other organisms that digest more slowly. For this synchronous cascade to begin, though, the microbial process needs a kick start.

Igniting the rumen happens via rapidly digestible carbohydrates. These are primarily sugar and starch, and we'll focus the remainder of the article on these two carbohydrates, with tips and tricks for optimizing performance.

It starts with starch

Starch comes into the diet via forages, grain, forage-grain combinations such as snaplage, or starch-rich by-products like bakery. While these are all important, corn silage is a focal point for us recognizing the sizable starch level it contributes toward kick-starting the rumen. The combination of mid-maturity grain in silage, along with extensive fermentation softening the grain, create a digestible starch source that is capable of igniting the rumen with plenty of punch.

We've recognized the impact factors with silage starch thanks to the past decade of dairy nutrition research. In fact, nutritionists assess feed rumen starch digestibility and optimize diets around fermentable starch to ensure the right amount of readily digestible carbohydrates are available day to day.

This fermentable starch point becomes ever more important when grain prices are at a premium, like this year, or when Mother Nature greets us with harder grain in silage. This year appears to be an intersection between both expensive grain prices and less digestible

starch in silage. Early indications from Rock River Laboratory suggest that silage starch digestibility is substantially lower for those east of the Rocky Mountains. Hence, this year's silage may not be contributing toward the rumen ignition as well as in years past.

In most years . . . following several months in the silo . . . your corn grain in silage begins feeding well and your herd hits its stride. Silage starch digestibility will improve through fermentation, but it may likely be a slower process this year. Check with your nutritionist and ensure you've got a handle on your silage ignition potential. We also can use the fecal-starch cowside tool like nutrition specialists Mike Hutjens, Jim Ferguson, and Randy Shaver have shown us for years. This analysis helps to quickly assess if your herd is missing ignition and make adjustments to save on corn feeding.

The goal for successful dairies these days is no more than 1% fecal starch. If your diet isn't igniting like it should be, consider adding corn starch, finely ground corn, or another rapidly digestible carbohydrate feed. Remember that sugar is also capable of kick-starting the rumen.

The second is sugar

Sugar comes into the diet via fresh forages, by-product feeds, and also through supplemental sugar in the form of molasses or whey permeate. Sugar is typically rapidly digested like well-fermented, high-moisture corn, but not all sugar is created equal.

Charlie Sniffen taught me years ago that milk sugar (lactose) may be more moderately degraded and not yield the same ignition as sucrose or fructose. His comments resonated

with me, recognizing that for lactose to be degraded in the rumen, we rely on the enzyme lactase to break up the milk sugar. The rumen may not have much lactase, thus the potential is there but the digesting speed is limited to perhaps something like dry ground corn.

Think of this situation like ice needing to melt before the water can boil. If your herd is looking for a rapidly digestible carbohydrate to fire up the rumen, ensure you and your nutritionist evaluate different sugar options and do not assume all are created equal.

Unleash the potential

With today's dairy nutrition plan on most farms, cows are fed a considerable amount of energy potential like that existing in the crowd at a sporting event. Adequate nutrients and energy are there, but just like the anxious crowd at an event, there must be a spark of ignition for the energy to be unleashed in the rumen. The subsequent digestion synchrony that ensues is like the cheering and jubilation after the pivotal, crowd-igniting moment. In the rumen, though, the outcome is microbial protein for components and energy for milk production. 🐄

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