

BEEF SOLUTIONS

Managing Dry Matter Intakes

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There is no “hello” or “how are you doing?” when your nutritionist pulls in the yard, the first thing they want to know is, “How are the cattle eating?” An animal update is the first order of business and takes priority over making small talk. Observing dry matter intakes (DMI) can help tell us a lot about what is going on with the cattle, like what kind of cattle they are and their surrounding environment. Beyond observation, managing DMI is critical to optimizing performance and improving profitability.

Back to basics

One of the fundamentals of feed intake is understanding the difference between as-fed (AF) and dry matter (DM) intakes. Producers are typically focused on how many pounds they need to feed their cattle. What they are typically asking for is AF pounds, or the total pounds of feed delivered to a pen. The moisture of the ration will have a major impact on the total number of pounds that are delivered to the pen; however, it is the non-water component that will impact whether or not the animal’s nutrient requirements are met. This is the DM portion of the diet, and monitoring it is our best tool for understanding how a pen of cattle is performing on a given diet.

DMI management

In the simplest terms, proper DM intake (DMI) management involves delivering the optimal amount of daily ration required for a pen of animals to achieve their production goals without waste. Close management helps reduce extreme highs and lows in the whole-pen DMI and leads to more consistent performance. Proper management requires doing careful planning and maintaining close observations every day.

Cattle type

Considering the cattle type will give the manager a good idea of what to expect in terms of DMI. The primary factors effecting DMI, while not exclusive or independent of each other, are sex, weight and age. When it comes to gender, it is easy to grasp the idea that heifers will eat less than steers or bulls at the same weight — but how do weight and age impact DMI?

Producers often use body weight to establish the anticipated dry matter intake. However, to accurately estimate DMI, maturity must also be considered. For instance, a 12-month-old steer weighing 1,000 pounds might eat 23 pounds of dry matter, while the same steer weighing 1,000 pounds at 18 months of age could eat 28 pounds.

The influence of age is not as easy to grasp, yet its impact on DMI overrides the effect of weight. To put this in perspective, consider the weight at which a given group of cattle will start on a high-energy diet. A calf fed, for example, is grown at a higher rate of gain and is started on a finishing diet at a lighter weight. Comparatively, yearlings are grown at a low rate of gain for a long period of time before starting on a typical finishing diet. Cattle that take more time to start on high-energy diets at heavier weights will eat more during the finishing phase.

Feed delivery

Providing adequate access to a quality diet is critical for a group of animals to perform as expected. We start with the perfect ration in mind, but there are three variables that can influence achieving consistent intake:

1. Ration on paper

Providing the appropriate nutrients is the easy part of ration formulation, but what about balancing a high-quality, palatable diet at the same time? Perhaps the biggest factor that positively influences intakes is targeting the proper moisture. Diets should be wet enough to limit sorting and improve density for mixing but not so wet that the moisture limits DMI or discourages palatability by over-feeding fermented feeds.

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2. Ration mixing

It is important to recognize that different types of mixer wagons will require unique sequencing and mixing times to limit the variation of the final total mixed ration (TMR). Why does this matter in relation to intake? Poorly mixed diets lead to sorting, which can lead to digestive upset or leave the less aggressive animals with a low-quality diet that limits their performance. Sorting is a big contributor to ups and downs in DMI patterns.

3. Diet delivery

Optimizing DMI also involves providing equal access so that all the cattle can consume the balanced ration. Delivering a uniform amount of feed across the entire bunkline is important for encouraging intakes in all the cattle. As a strategy to limit sorting, some producers will deliver feed twice per day.

While much of the focus on ration balancing and feed delivery is on limiting sorting, there are other aspects of the diet that can impact DMI. Diets that are high-fiber and low-energy — particularly those that are protein-deficient — will limit DMI. In this circumstance, intake is limited by the physical fill of the rumen. On the other end of the spectrum are high-energy and high-starch diets. In these cases, intakes may be curbed by metabolic factors, such as increased volatile fatty acid (VFA) production, the diet fat content and higher blood glucose levels. In extreme cases, in which cattle over-consume highly fermentable carbohydrates, acidosis may occur. Cattle adapt to the depressed pH by reducing their DMI.

Environmental factors

So, after reading everything to this point, you are convinced that you are in control — right? Not so fast! At the end of the day, even with the best laid plans, Mother Nature will throw us a curveball. Changes in temperatures as well as wet pen conditions also influence how much cattle will eat.

Big swings in temperatures create a challenge when it comes to managing DMI. While there is certainly a seasonal effect on DMI, the bigger challenge is dealing with the transitions in extremes from day to day. In northern winters, for instance, we must be ready for severe cold snaps and prepare to increase feed deliveries. Conversely, warm summer nights — or nights with little cooling — are often met with higher feed refusals. The question remains: How does a manager limit the peaks and valleys of intakes?

We have already discussed how important a hard-to-sort ration is, but no other tool does more to help limit peaks and valleys than bunk scoring and making feed calls (i.e., estimating daily DMI in a pen). The South Dakota State University (SDSU) system for bunk scoring is an effective tool that tracks the eating habits of cattle and helps managers determine how much ration to deliver in the subsequent feeding. Grasping this concept allows producers to make better calls on how much feed to deliver, given the extremes in weather that may be coming.

Score	Description
0	No feed remaining in bunk.
1/2	Scattered feed present. Most of the bottom of the bunk is exposed.
1	Thin, uniform layer of feed across the bottom of the bunk. Typically, about 1 corn kernel deep.
2	25–50% of previous feed delivery remaining.
3	Crown of feed is thoroughly disturbed. More than 50% of previous day's feed remains.
4	Feed is virtually untouched. Crown of previous day's feed still noticeable or undisturbed.

SDSU Bunk Scoring System: <https://extension.sdstate.edu/feed-bunk-management>

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Consider the famous quote from “Feeds and Feeding” referencing an old European saying: “The eye of the master fattens his cattle.” Making the proper feed calls is a skill that requires experience, but there are a few points even a novice feeder may consider.

- Have a good idea of what you expect DMI to be given their sex, breed, weight and age.
- If a bunk is scored “0” for three consecutive days, the cattle desire more DM, and a 5% increase in delivery should be made to that pen.
- Consistent scores of “1/2” indicate that the feeder has found the optimal intake level for that pen of cattle under the current conditions.
- Multiple days of bunks scoring “1” indicate that the cattle can’t consume the amount being delivered. To limit waste, feeders should reduce the pen delivery by 5%.
- Scores greater than “1” will require larger downward adjustments and may be an indicator of larger problems occurring in the pen.

Managing pen conditions could be seen as a third tool at our disposal that leads to consistent intakes. Wet and muddy conditions can have a negative impact on a pen of cattle’s DMI. Unbedded cattle in muddy pens are stressed, and not only does stress create variability in terms of intake, but the cattle may also have limited access to feed. Extremely muddy pens discourage cattle from frequenting the bunk, creating unique challenges for managing intakes.

Conclusion

This report is hardly an exhaustive description of factors affecting DMI, but it should help managers understand big-picture items. Monitoring DMI helps producers both understand and control what is going on with a pen of cattle. The proper management will support consistent performance. At the end of the day, managing DMI is centered on optimizing efficiency and improving profitability. So don’t be surprised when your nutritionist skips the pleasantries. Asking how your cattle are eating is their way of showing you they care!