

IOWA BEEF CENTER

FEED BUNK MANAGEMENT



Feedlot managers know the way to consistent and sustainable animal growth performance is through proper feed bunk management. From helping you understand feed mixing, composition and quantity to suggesting protocols for scheduling timely and appropriate feed deliveries, this publication provides tips and techniques to make feed bunk management a vital component of your operation.

Inconsistent feed mixing and delivery can lead to digestive disorders including bloat, acidosis, and liver abscesses that disrupt cattle feed intake and performance. Poor feed bunk management can result in erratic intake patterns that reduce dry matter (DM) intake and average daily gain by as much as 10%-15%. Ultimately, improper bunk management results in lost revenue to the producer because feed conversion is not maximized.

Cattle feeders should strive for delivering a uniform, high quality ration each day to prevent fluctuation in cattle intakes. Feed bunk management tools are one method of monitoring ration deliveries to aid in preventing lost performance from digestive upset.

What is feed bunk management?

The definition of feed bunk management is to deliver a consistent, nutritious, fresh ration in a manner designed to optimize DM intake while minimizing waste and spoilage. This includes feed delivery decisions, feed mixing, nutrient balancing, feedstuff quality control and characteristics, feed processing, and other factors related to feed presentation. Factors such as adequate bunk space, proper health management, and facilities to maintain cattle comfort also contribute to successful feed bunk management.

Feed delivery decisions (feed calls) are estimates of the amount of feed a pen of cattle will consume daily. Factors such as cattle frame size, weight, weather, and health must be taken into account, and producers also must account for the effect of a given feed intake on intake at subsequent

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feedings. For example, cattle might consume all of the delivered feed shortly after a feed delivery increase, yet lose appetite and crash a day or two later. This classic mistake sets the stage for roller coaster consumption patterns.

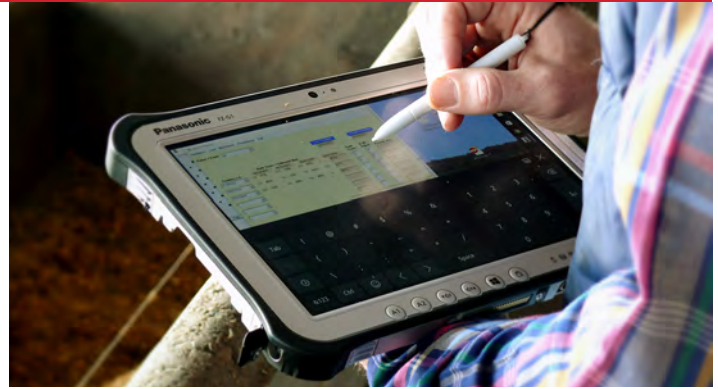
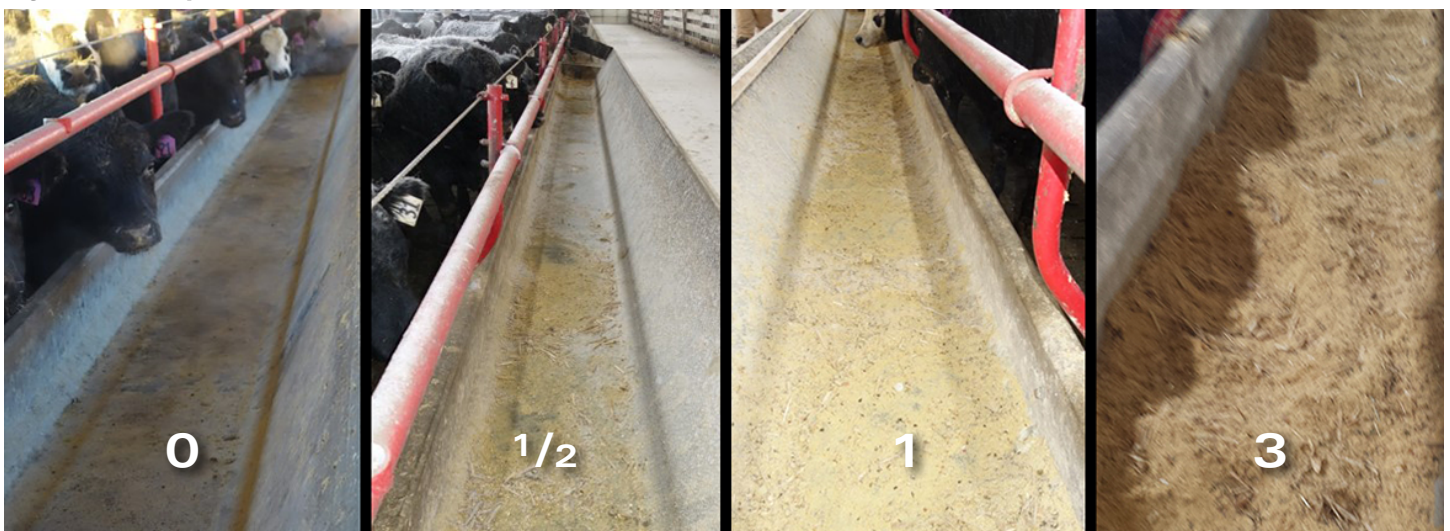
The South Dakota State University 4-point feed bunk scoring system

In order to assist feedlot employees with adjusting feed calls, South Dakota State University (SDSU) researchers developed a scoring system (Table 1) that allows the feeder to estimate actual consumption, appetite, and feed deliveries. Checking records of the previous four to seven days when making feed calls allows the feeder to see intake trends (increasing, steady, decreasing) and can illustrate delayed response in cattle behavior to a feed change. To be consistent, feed calls should be made by the same personnel each day, and a protocol for when to adjust feed deliveries should be developed and followed. Examples of bunk scores 0, 1/2, 1, and 3 are shown in Figure 1.

Table 1. SDSU 4-point bunk scoring system

Score	Description
0	No feed remaining in bunk.
1/2	Scattered feed present. Most of bottom of bunk exposed.
1	Thin uniform layer of feed across bottom of 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.

Figure 1. Examples of feed bunk scores



How to use feed bunk scoring system

Figure 2 is an illustration of the bunk reading input screen for the Iowa State University Feedlot Monitoring Software (<http://www.iowabeefcenter.org/feedlotmonitor.html>). This example shows four pens being fed from the same load of feed.

- The first pen was not adjusted because of the cattle's consistent intake, an indication that they may have reached maximum intake or are on full feed.
- For the second pen, three consecutive days of clean bunk scores (score of 0) indicate cattle appetite is increasing, so feed delivery was increased by 5% (DM) on day 4.
- The third pen shows cattle that are backing off feed, so after three consecutive days of bunk scores of 1, feed delivery was decreased by 5% (DM).
- In pen four, on day 3, feed delivery was increased by 5% (DM). While the feed calls indicate that bunks have been clean following that initial increase, another increase will not be made until the day following (three consecutive days of bunk scores of 0.) Other bunk management approaches might allow smaller increases on a more frequent basis.

Figure 2. ISU Feedlot Monitoring Software bunk reading input screen (Batch sheet A)

Feeding_Lot:	Bunk Score + Delivered (lbs)				Bunk Score	% Wt. Adjust.	Provide (lbs)
	07/01/2015	07/02/2015	07/03/2015	07/04/2015			
1234 2015	0.0 1428	0.0 1428	0.0 1428	0.5 1428	0	0	1428
1235 2015	0.0 2261	0.0 2261	0.0 2261	0 2375	0	0	2375
1236	0.0 4080	0.0 4080	1.0 4080	1 4080	1	-5	3876
1237 2015	0.0 3300	0.0 3300	0.0 3500	0 3500	0	0	3500
				11383	clear	load	11179

Philosophy of feed bunk management

Feedlot managers can implement different methods for successful feed bunk management based on their individual philosophy. For example, one feeder may want to manage bunks to be clean every day. Another may choose to manage a certain amount of feed remaining each day. The key to successful bunk management is to know the feeder's philosophy and consistently make decisions based on it.

Regardless of philosophy, one common approach is for the feed caller (often referred to as bunk reader) to evaluate each bunk early in the morning prior to the first feeding of the day. Feed calls should be made at the same time each day to assure consistency in assessing feed intake. The bunk reader will then evaluate the bunk score and past intake, and then, using the manager's philosophy and their best judgment, determine the current day's feed deliveries (see Feed Bunk Management Standard Operating procedure (SOP) form at <http://store.extension.iastate.edu/Product/IBCR201B-PDF>).

For maximum intake, the goal is to ensure that cattle have feed in front of them at all times (ad libitum feed access.) However, feed waste can be considerable with this

approach and also can lead to inconsistent daily consumption. Many producers utilize a "slick bunk" or clean bunk (score of 0) approach that reduces feed waste and may actually improve feed conversion of cattle (approximately 2%-3%.) However, restricting feed intake too much will prevent cattle from gaining at their maximum potential.

The best bunk managers strive to strike a balance between high feed intake for performance and minimal feed waste, while maintaining consistent intake. Ideally, cattle will maintain a near maximal intake for days or even weeks. Once cattle have reached their sustainable maximum intake and are on full feed, often there is little need for changes in feed delivery.

Depending on their feed bunk management philosophy, cattle feeders generally target a clean bunk 50%-70% of the time. Over a period of seven to ten days, it is desirable to see feed bunk scores of $\frac{1}{2}$ no more than two or three of those days, and a score of 0 the rest of the time. At this point, cattle have reached their sustainable maximum intake. To maintain consistency, procedures may be implemented to restrict the size or timing of changes in feed deliveries or both.

For example, maximum changes may be 2% DM per day or 4%-6% DM increase every third day. Researchers at Colorado State University found that targeting a score of 0 each day will reduce DM intake about 14% compared to targeting a bunk score of 1. When targeting a bunk score of $\frac{1}{2}$, intake was reduced by 6%. Both the $\frac{1}{2}$ and 0 target scores minimized feed waste compared to targeting a score of 1.

Charting dry matter intake

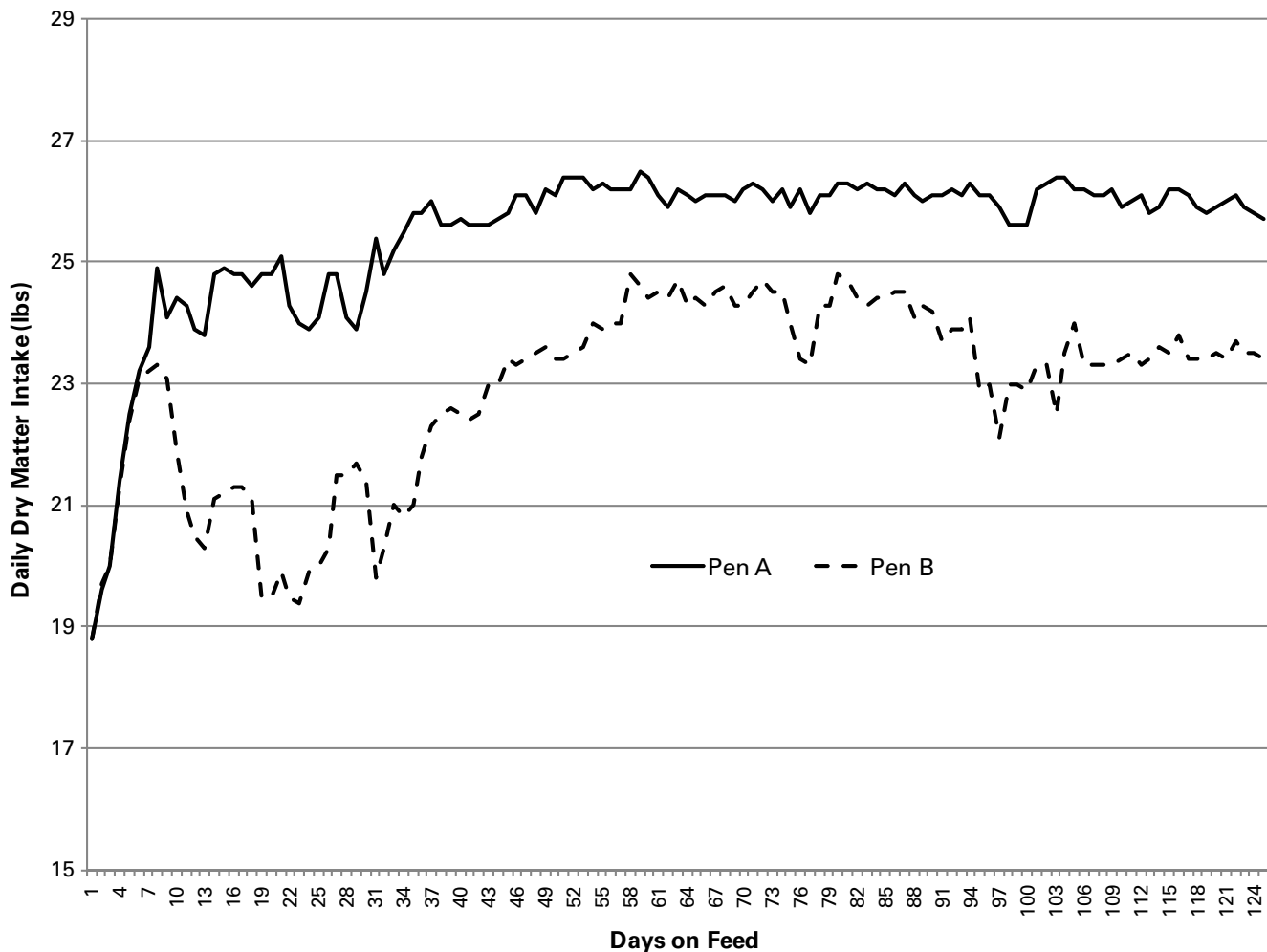
Many feed delivery and monitoring software programs now allow feedlot managers and nutritionists to develop daily DM intake charts. Charting DM intake allows for visual assessment of feed intake patterns as well as identification of potential health issues prior to noticeable signs of cattle sickness.

Figure 3 is an example of DM intake of two pens of cattle fed similar diets but managed differently. Pen A (represented by the solid line) had relatively steady intakes after being transitioned to the finishing ration

(beginning ~ day 30) with a sustainable maximum intake of approximately 26 pounds. The ultimate goal is to find the sustainable maximum intake and keep feed deliveries relatively consistent with it.

On the other hand, Pen B (represented by the dashed line) had much greater variability of intakes, stemming back to a significant drop of intake at about day 9 during the transition period. Cattle from Pen B most likely experienced an acidosis challenge that triggered the significant drop in DM intake. Evaluating bunk scores and feed deliveries just before and after this point (day 9) can be useful in helping diagnosis the source of the problem. Notice that cattle in Pen B never fully recovered to their potential DM intake levels as those in Pen A. Pen B continued to have inconsistent intakes throughout the remainder of the group's days on feed. This demonstrates the importance of implementing a feed bunk management plan that can help alleviate peaks and crashes of cattle intakes and result in higher performance.

Figure 3. Dry matter intake comparison of two pens



Other considerations

Other factors that affect feed call decisions include cattle behavior and weather.

Cattle that are extremely aggressive and waiting at the bunk are obviously hungry. Aggressive cattle also will consume their feed quickly, and mid-day bunk checks that show clean bunks can verify this. If bunk space is inadequate, this can set up a situation where dominant cattle get more than their share of feed. There may be times when the bunk is read as slick (bunk score of 0), but because the cattle are not aggressive, you wait to increase feed delivered to them. Nutritionists have developed guidelines on how an ideal set of cattle should respond when feeding. One goal could be for a third of the cattle standing at the bunk, a third heading for the bunk, and a third showing interest in the feed truck when it arrives.

Weather changes, especially those of temperature and precipitation, can lead to changes in feed intake and feed call decisions. Heat can dramatically reduce appetite and should be factored into daily feed bunk calls. Precipitation can affect feed palatability and consumption, especially in warm weather. Rain also affects feed consumption because of the secondary effects of muddy lots. Mud can severely reduce feed intake by restricting cattle movement and making access to feed and water more difficult. Cattle also seem to have the ability to sense approaching weather changes. Generally, cattle tend to increase intake as a storm front approaches and may become increasingly aggressive eaters. Because of this, some feeders have supplied “storm rations” consisting of additional roughage or higher levels of a lower energy ration when weather changes are expected. This practice is from the days before the availability of sensitive truck scales and ionophores as tools to help manage intake. Today, we simply manage intake to the accustomed level as the front passes.

Other factors to consider in feed bunk management relate to feed presentation. Diets should always be fresh, palatable, and uniformly nutritious. Proper mixing procedure, ingredient selection, and processing should be used to ensure uniform distribution of macro and micro ingredients and other nutrients. Stale feed should



be removed from the bunks and discarded. Formulations that allow fine particles that may contain concentrations of minerals, feed additives, or highly fermentable grains are easily separated in the bunk and should be avoided. The use of ingredients that help condition the diet, such as high moisture feedstuffs like silages or corn coproducts from the ethanol industry, will help reduce fines.



Consider these best practices for your feed bunk management protocol:

- Read each bunk at the same time every day - before the morning feeding.
- Have feed delivered within a 15-minute window daily to optimize performance.
- Maintain consistency of feed quality and quantity throughout the entire length of the bunk.
- Establish a standard amount to increase (or decrease) feed offered. Typically this is equivalent to 4%-6% DM intake change, but only every third day.
- Wait a minimum of three days after an increase in feed delivery before increasing again.
- Provide written feed bunk management guidelines and standards to all employees to ensure consistent decision-making on feed calls (download Feed Bunk Management Standard Operating procedure (SOP) form at <http://store.extension.iastate.edu/Product/IBCR201B-PDF>).

In summary, good feed bunk management coupled with optimum ration formulation and mixing can minimize the incidence of metabolic disorders, improve efficiency, and reduce the cost of production. While a feedlot can adopt its own style of feed bunk management, accurate record keeping and utilization of those records are vital for the success of this practice.

Prepared by Erika L. Lundy, extension program specialist; Dan Loy, professor of animal science; and Garland Dahlke, assistant scientist, Iowa State University Extension and Outreach.

Photos by Erika L. Lundy, extension program specialist, Iowa State University Extension and Outreach. Photos on page 6 by Dan Loy, professor of animal science, Iowa State University Extension and Outreach.



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