

Virtual Beef



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Bunk Management and Cattle Feeding Behaviour

The relationship between bunk management and cattle feeding behaviour

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Bunk management is a common topic for discussion amongst feedlot operators because it is a central practice to feeding cattle. Improper bunk management can result in digestive disorders, inconsistent dry matter intake, and poor performance, and it ultimately affects a cattle feeder's bottom line. It is estimated that poor bunk management can reduce dry matter intake and average daily gain by up to 10-15%. Bunk management plays a big role in maintaining rumen health.

Slick Bunk Approach and Cautions Around Length of Time the Bunk is Empty

Slick bunk management is an effective approach to managing feed intake and reducing feed waste when managed well. Situations where cattle are offered feed ad-libitum or inconsistent deliveries can lead to yo-yo intakes and the reoccurrence of off-feed incidences.

The challenge is striking a balance between overfeeding and underfeeding. The ultimate goal of bunk management is matching feed deliveries to dry matter intake (DMI) to achieve desired performance. Concerns with leaving the bunk empty for too long include poor gains, reduced feed efficiency, reduced carcass quality, longer days on feed, and increased risk of digestive upsets (fluctuating intake) which can lead to other health issues.

If slick bunk is the goal, these questions need to be raised:

- 1) How long is the bunk actually slick/empty for? and
- 2) Are feed deliveries matching actual target DMI and the appetite of the pen of cattle?

Results from a recent joint study by OMAFRA and the Ontario Corn-Fed Beef Program suggest that the bunk may be empty longer than a feeder realizes.

Cattle Feeding Behaviour is Influenced by Bunk Management Approach

In a 2020 bunk management study jointly coordinated by the Ontario Corn-Fed Beef Program and OMAFRA staff, trail

Bunk Scoring – A Tool for Reading Bunks

Researchers from South Dakota State University have developed a 4-point bunk scoring system that assists feedlot operators in consistently and objectively monitoring intake.

The 4-point bunk scoring system

Score	Description
0	No feed remaining
½	Scattered feed remaining; most of the bottom of the bunk is exposed
1	Thin uniform layer of feed remaining (~ 1 corn kernel deep)
2	25-50% of feed remaining
3	Greater than 50% of feed remaining with crown thoroughly disturbed.
4	Feed is generally untouched. Crown of feed from previous feed still noticeable.

University (SDSU).

This scoring system helps operators estimate actual DMI rather than rely solely on feed delivery records.

cameras were used to monitor cattle feeding behaviour, bunk scores, and bunk management approach (specifically, timing of feed deliveries and feed push-ups). Using the 4-point SDSU bunk scoring system, bunks were assessed hourly (and more frequently around feeding times) to observe intake behaviours over a cycle of at least 72 hours on six farms in Ontario.

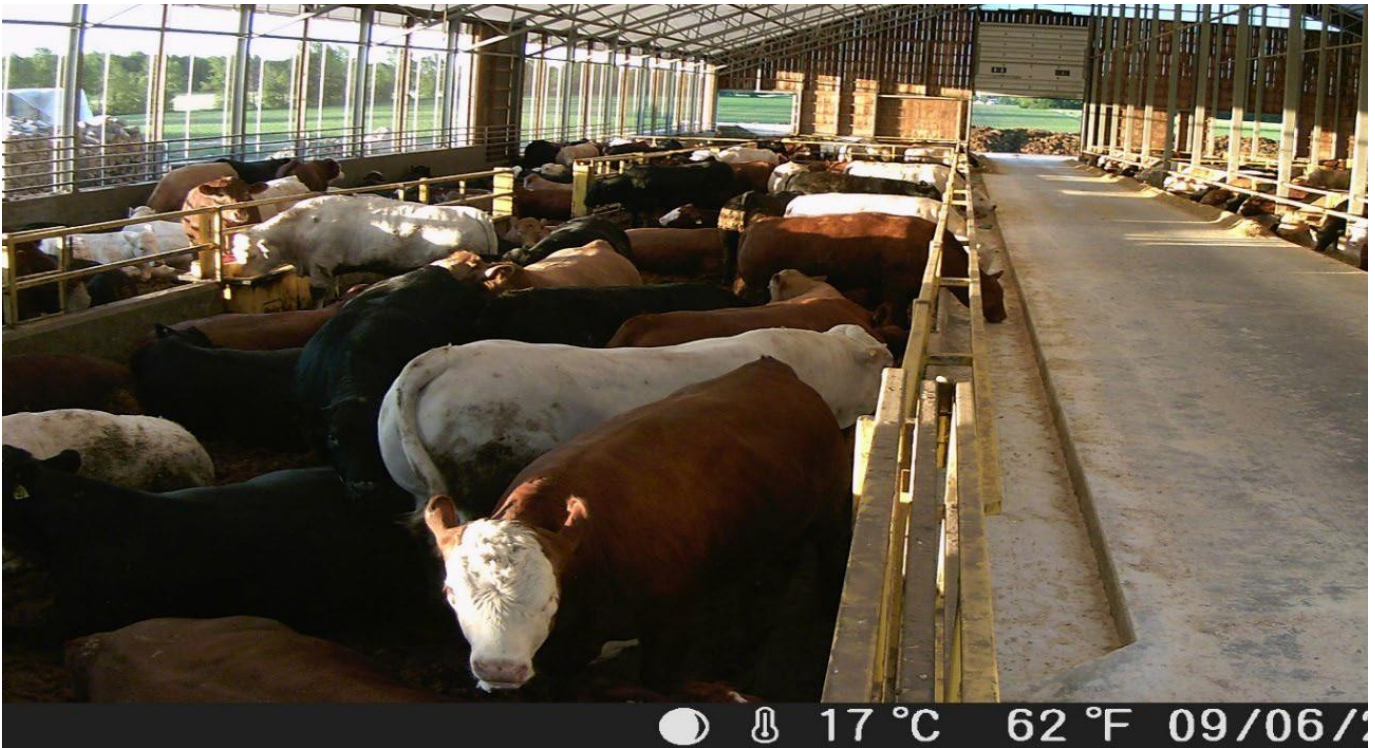


Figure 1a). Daytime image of a feed bunk from a trail camera at a participating farm.



Figure 1b). Nighttime image of a feed bunk from a trail camera at a participating farm.

Academic research and practical experience tell us that success in bunk management is anchored in consistency and diligence in monitoring. Consistency is important in many aspects of feeding, including timing of feeding, timing of when bunks are read before feed deliveries, the person reading bunks and delivering feed, feed mixing order and mixing time. Promoting consistency in feed delivery helps to stabilize ruminal fermentation and pH to improve feed efficiency. There is a large body of evidence that supports the practice of feeding multiple times a day (more than once) to improve performance of cattle. Feeding less, more often helps to reduce stress on cattle coming to the bunk by decreasing aggression. With increased feeding frequency, cattle generally consume less at each visit but visit the bunk more, resulting in more consistent feed intake and better rumen health.

Figures 2 a) and b) illustrate feeding behaviours associated with feed deliveries and feed push-ups in 24 hours, where these activities encouraged cattle to visit the bunk. These figures are examples of data obtained from the trail cameras and graphed. The black line represents the number of cattle feeding at the bunk (expressed as a percentage of bunk capacity) and the green bars represent bunk scores (representing feed disappearance and deliveries over time). The vertical lines represent feed offerings, with the red lines representing fresh feed deliveries and the blue lines representing feed push-ups. These data collected and trends observed confirm the importance of frequent feeding and/or feed push-ups in attracting cattle to the bunk for meals for more consistent feed intake.

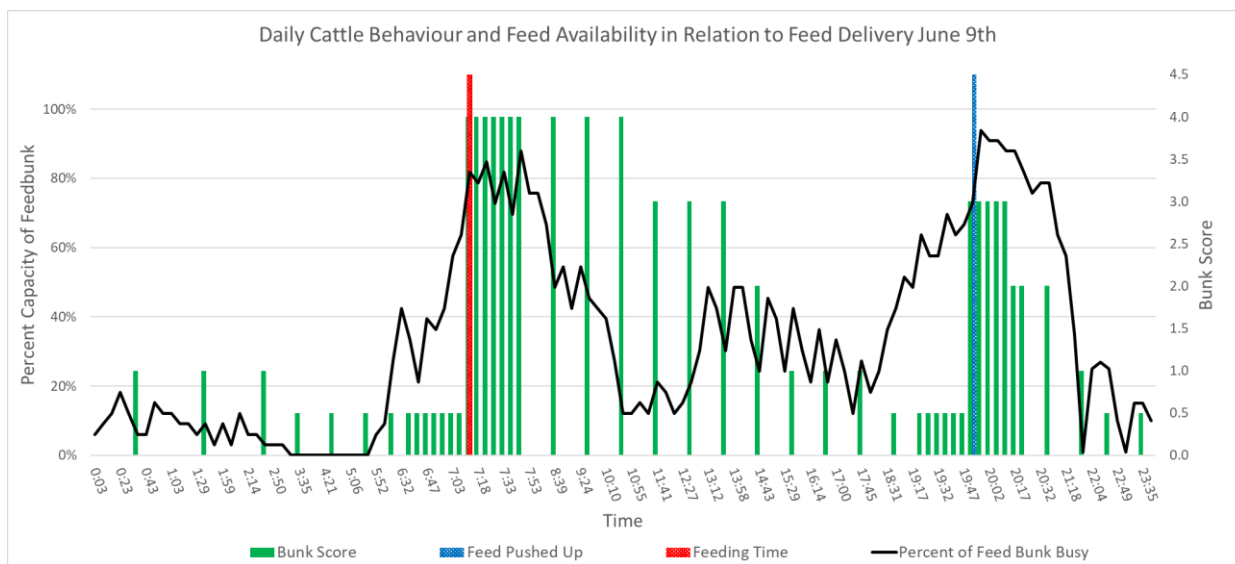


Figure 2a). Feeding behaviour and bunk score over time, where time “0” is midnight.

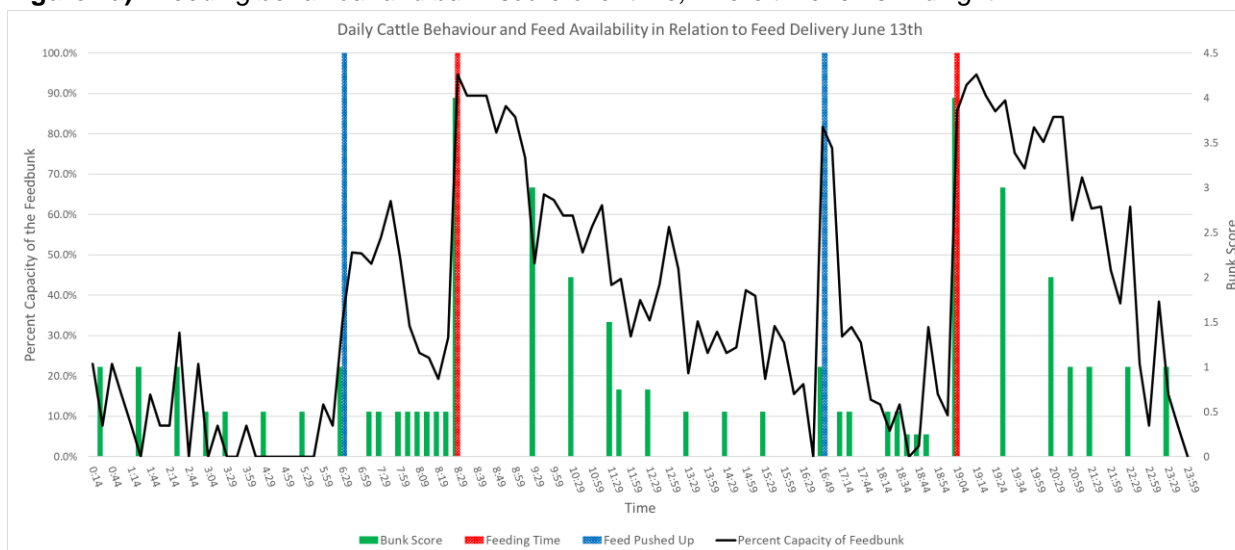


Figure 2b). Feeding behaviour and bunk score over time, where time “0” is midnight.

Similarly, reducing the amount of time the bunk is empty improves consistency in intake. On average, bunks were empty for 5.5 hours in a 24-hour time period across the farms studied in 2020. The maximum time a bunk was empty during the study across farms was 13 hours in a 24-hour period. In contrast, the benchmark to strive towards is to keep the bunk slick for 1 hour or less before feeding.

Using Information to Manage Bunks

Monitoring feeding behaviour over time and assessing exactly how long bunks are empty for can be a challenge, compounded by off-farm work and fieldwork. Trail cameras are excellent tools to monitor cattle behaviour and assess bunk management strategies. They can be used to shed light on the impact of specific practices without the interference of human observers and are valuable in capturing data over time. *Figure 3* provides an example of what feeding behaviour data looks like graphed over time (in this case three days) for one of the study's participating farms.

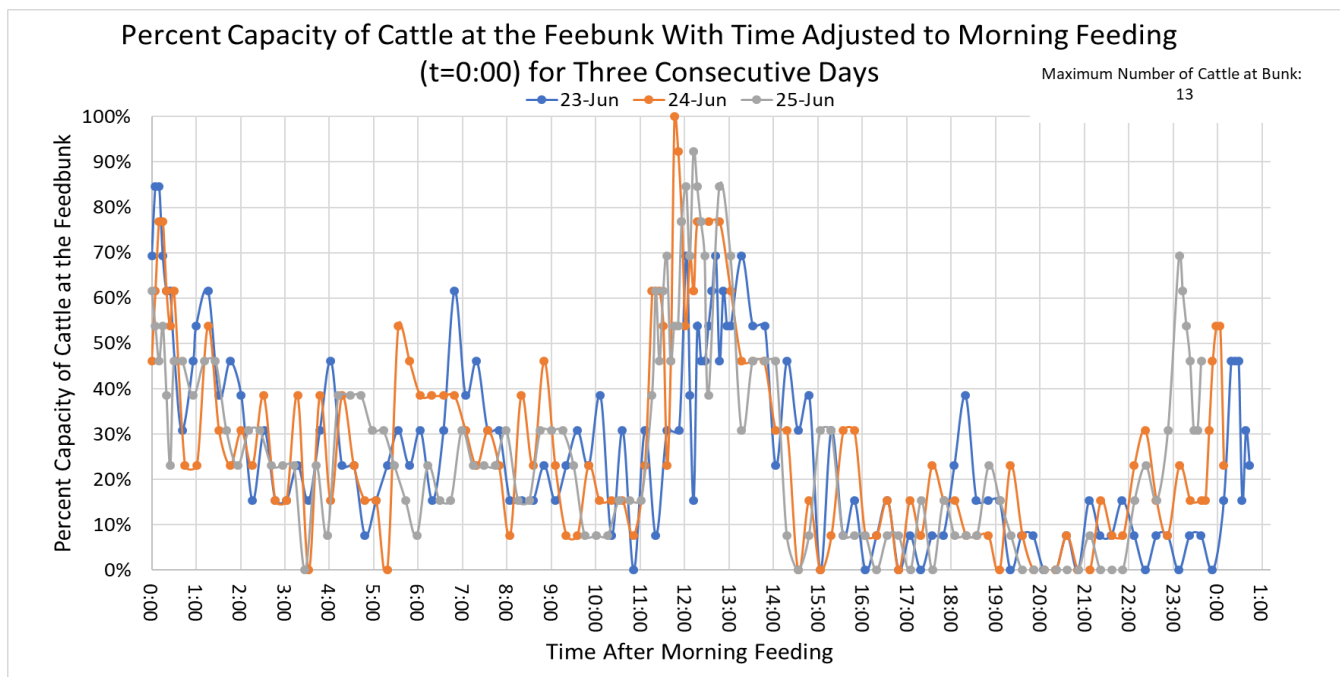


Figure 3. Number of cattle at the feed bunk (expressed as a percent of the capacity of the feed bunk) over three days (each line representing a different day). Time “0” represents time of morning feeding.

Practically speaking, it is not feasible to use trail cameras to collect information and assess cattle feeding behaviours on a daily basis as was done in this study, but there are other tools that can be used routinely that lend to sound bunk management. While each cattle feeder will develop their own approach to using information from bunk reading, the use of a bunk scoring tool such as the 4-point bunk management tool developed by South Dakota State University can help an operator collect important information on DMI every day. This scoring system is most effective when it is used to read bunks on a daily basis and when the information is used to make decisions for feed deliveries over a number of days. For example, the information can be used to decide whether:

- **Feed deliveries should be increased.** Increases in feed deliveries should be considered after observing 3-4 days a slick bunk (i.e. score of 0) when the bunk is read before feeding.
- **Feed deliveries should be reduced.** Reducing delivered feed should be considered after observing 2 days of feed left in bunk (i.e. score of 1 or more) to avoid overfeeding and deterioration of feed quality.
- **Feed deliveries should be maintained.** A bunk score between 0 and 1 suggests that intake is consistent and feed deliveries can be maintained.

Keep in mind that making aggressive changes to feed deliveries can disrupt intake and cause yo-yo feeding behaviour. Gradual changes reduce the potential for feed intake disruptions and digestive upsets, where changes to feed deliveries do not exceed 3-5% on a dry matter basis. The next level of using bunk scoring is graphing this data over time, which allows the operator to visually see trends in dry matter intake over a feeding period.

There are lots of factors going into making feed delivery decisions (sometimes referred to as 'feed calls'), including cattle behaviour, manure consistency, cattle health, weather patterns, etc. Ideally feed calls are made by the same person every day. Those making feed calls should be familiar with the pen of cattle and recent history of feed deliveries.

Observing the aggressiveness of cattle at the bunk is another monitoring mechanism that when paired with bunk scoring can help an operator understand the appetite of cattle and guide decision making when it comes to feed deliveries. It is desirable to see about 25% of cattle approaching the bunk for feed during feeding. Observing overly aggressive cattle during feeding is often an indication that cattle are hungry.

The authors would like to recognize project members Brent Cavell (Quality Assurance Manager, Ontario Corn-Fed Beef Program), Christoph Wand (Livestock Sustainability Specialist, OMAFRA), and Julie French and Katelyn Sysiuk (2020 summer livestock assistants, OMAFRA).

References:

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