
## *UNDERSTANDING COW BEHAVIOR FROM A NUTRITIONAL PERSPECTIVE (2)*

### *FEEDING BEHAVIOR PATTERNS*

When grazing, cattle often synchronize their behavior so that many animals in the group feed, ruminate, and rest at the same times *(Miller and Wood-Gush, 1991)*. Curtis and Houpt (1983) reported that group-housed dairy cows kept indoors also synchronized their behavior, particularly at feeding. They reported that when cows are fed in groups, the act of one cow moving to the feed bunk stimulates others to feed. It has typically been accepted that dairy cattle exhibit a diurnal feeding pattern where the majority of feeding activity occurs during the day, particularly around sunrise and sunset *(Albright, 1993)*. However, this observation is almost exclusively based on the feeding patterns exhibited by grazing cattle. To gain a better understanding of how management factors influence dairy cattle behavior, we examined the normal feeding pattern of group-housed lactating cows fed a TMR ad libitum *(DeVries et al., 2003)*. In this study, we found that cows consumed an average of 7.3 meals/day and had an approximate daily meal time of 6 hours/day. We also found that the diurnal feeding pattern was mostly influenced by the time of feed delivery, feed push-up, and milking. Further, it was clear that the most dramatic peaks in feeding activity occur around the time of feed delivery and the return from the milking parlor.

To follow up on this, we set out in an experiment to determine which of these management practices is the primary factor stimulating dairy cattle to go to the feed bunk *(DeVries and von Keyserlingk, 2005)*. We tested this objective by separating feed delivery and milking times by 6 hours. When animals were fed 6 hours post-milking, they increased their total daily feeding time by 12.5%. This change was predominantly driven by a small decrease in feeding time during the first hour post-milking and a very large increase in feeding time during the first hour immediately following the delivery of fresh feed. These results indicate that the *management practice of feed delivery acts as the primary influence on the daily feeding pattern* of lactating dairy cows and not the time of day.

### *FEED BUNK MANAGEMENT*

One of the most common feeding management practices believed to stimulate feeding activity is feed push-up. When fed a TMR, dairy cows have a natural tendency to continually sort through the feed and toss it forward where it is no longer within reach. This is particularly problematic when feed is delivered via a feed alley, and thus, producers commonly push the feed closer to the cows between feedings to ensure that cows have continuous feed access. An observational study *(Menzi and Chase,1994)* noted that the number of cows feeding increased after feed push up; however, they concluded that feed push-ups had “minor and brief effects” in comparison to milking on the feed bunk attendance. In another study, the stimulatory effect of feed push-up was tested by increasing the number of push-ups during the late evening and early morning *(DeVries et al., 2003)*. In this study, it was found that the addition of extra feed push-ups did little to increase feeding activity. However, pushup does play a vital role in ensuring that feed is accessible when cows want to eat. As mentioned above, delivery of fresh feed is clearly an important factor in stimulating cows to eat. Thus, the frequency of feed delivery should influence the feeding patterns of lactating dairy cows. To test this prediction, we conducted an experiment to determine whether increasing frequency of feed delivery affects the behavior of group-housed dairy cows *(DeVries et al., 2005)*. This objective was tested in two experiments. In the first experiment, the treatments were: 1) delivery of feed once/day (1x), and 2) delivery of feed twice/day (2x). The treatments for the second experiment were: 1) delivery of feed 2x, and 2) delivery of feed 4 times/day (4x). In both experiments, increased frequency of feed provision increased total daily feeding time by 10 and 14 minutes, respectively, as well as increased the distribution of feeding time throughout the day. The distribution of feeding time in both experiments indicated that cows had more equal access to feed throughout the day when provided feed more frequently. Frequency of feed delivery had no effect on the daily lying time of the cows or the total number of aggressive interactions at the feed bunk. However, we did find that subordinate cows were not displaced as frequently when fed more often, indicating that these cows would have greater access to feed, particularly fresh feed, when the frequency of feed delivery is high. In addition to these behavioral measures, we also looked at the effects of frequency of feed delivery on feed composition throughout the day.

*Article to be continued in the October edition*

*(Edited from an article by DeVries/Keyserlingk, Un of British Columbia)*

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*Our goal is to help you. That’s the W-S Feed commitment!*

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**W-S FEED… SOLUTIONS & RESULTS**

**THE TEAM FOR SUCCESS!**

***The value of forage analysis…***

Your forages tell a story… a story that impacts your entire ration program. The nutritional value of forages varies, depending on many things – the weather throughout the growing season, time of harvest, length of cut, how it is stored, and whether or not it has been treated with a quality inoculant or preservative. The desired end-result is to feed your cows quality forages, forages which provide a good level of nutrients. A forage analysis can help give focus to your nutritional program, providing insights into what the forage offers, and how we can evaluate what is best for the entire ration and nutrition program from new crop silages or hay – until feedout. Ask about FORAGE ANALYSIS today. Know the facts and plan accordingly. A forage analysis can help to make a difference this fall and winter.

***Forage inventories… ready for fall and winter!***

Do you know what your forage inventories are going to be? Don't wait until fall or winter to check this out. When the possibility of forage shortages exists, planning ahead can help save time, money and frustration. Once you have determined if there is a shortage and the amount of available forage you will have to work with… begin to strategize how you are going to meet the needs and demands for your livestock this winter. The options are many, but forward planning is critically important. Here are a few suggestions to consider if forage shortages are possible:

- Plant specific forage crops this month! Check what is available… purchase now and plant as soon as possible, if you are going to need a fall cutting to aid forage supplies.
- Locate other producers that may have forages to sell! Make sure you purchase not only on price, but also on the overall quality and nutrient value of these forages.
- Work closely with your W-S Feed Nutritionist to determine the most effective ways of feeding what you have (or can buy).
- Make sure all the cows in your herd are paying their way! This might be a good time to cull cows that are lagging or have not been productive.

We will be happy to work with you to discover the best solution for your situation.

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