



Dairy Details

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Editor: Dr. Weisenbeck

NORTHERN VALLEY DAIRY PRODUCTION MEDICINE CENTER

Naps are not just for kids...

This year for Christmas, we enjoyed a quiet holiday morning while on call. The evening was spent with family, including a pile of nieces and nephews who had missed their naps due to the excitement of Christmas and were busy making laps around Grandma's kitchen. As they continued their laps of joy, I couldn't help but think, how are they NOT tired?!

Sometimes I think the same can be said for cows, especially those in our lactating pens. Lactating cows are like marathon runners. We ask them to work hard every day. They require the appropriate diet, optimal body function, especially the liver and rumen, and lots of rest. A cow in early lactation producing 80 lbs. of milk needs a supply of 6 lbs. of glucose per day just for that milk production. So how can we help her achieve her true athletic potential?

We can think of a cow's day as a time budget. She has a routine of eating, lying/resting, social interactions, ruminating, drinking, and time spent milking/management activities. In table 1, researchers at the Miner Institute found that cows in freestall-housed, parlor-milked herds will spend 12 to 14 hours a day resting (lying) and 3 to 5 hours per day feeding. These two behaviors alone make up 80% of her day, leaving limited time for other behaviors and management activities.

The Miner Institute also found that for every hour of rest lost decreased milk production by ~2.2 lbs. per day. Although this finding is specific to their research, decreased lying time in a comfortable cow stall nearly always results in decreased milk production.

This research group also studied a specific cow in relation to her daily time budget. In 1993, researchers measured the daily time budget for the cow, Beecher Arlinda Ellen, during the lactation in which she set the world record for milk production. The group found she spent 6.3 hours per day eating, 13.9 hours per day resting, and 8 hours per day ruminating.

Table 1 Daily time budget for lactating dairy cow

Activity	Time devoted to activity per day
Eating	3 to 5 hours (9 to 14 meals/day)
Lying/resting	12 to 14 hours
Social interactions	2 to 3 hours
Ruminating	7 to 10 hours
Drinking	30 minutes
Management activities	2.5 to 3.5 hours

Source: Grant, 2007.

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Another group found compared the time budget for the top 10% of cows in a herd compared to average production cows. The top group of cows, or the “elite production” group rested for 14 hours per day as compared to the average production group, who rested 10 to 12 hours per day.

Why does this matter? Perhaps the actual requirement for resting is close to 14 hours per day for the most productive cows in the herd, rather than 10 to 12 hours.

Finally, in regards to fresh cows, decreased resting behaviors may be related to underlying health issues. A recent publication in the *Journal of Dairy Science* found that lying time in the first 14 days of milk had a significant association with metabolic health issues, particularly ketosis. In fact, when lying time was decreased, there was a decrease in time spent at the feed bunk. The researchers found that the cow’s drive to rest meant she would sacrifice feeding time and potentially meal sizes to have more resting time. The last thing we desire in the transition cow groups is reduced intakes. This can increase the risk of fresh cow metabolic disease significantly.

What are some factors that might limit lying/resting time in your herd? Consider some of the following ideas:

- Stall size
 - (greater lying times observed in wider stalls)
- Bedding type and quality
- Stall competition/stocking density
 - (mature dominant cows more likely to get their required rest while younger cows are displaced)
- Lactation 1 cows housed with L2 and older
- Time spent in holding area and return lanes
- Time spent for management activities (for example, lock up time)

It may be interesting to look at the lying times of cows in your herds. Do they achieve 12 or more hours? Is there something happening on the farm that restricts the cow’s time budget, and therefore her welfare and productivity? Could this have a financial impact on your operation?

Consider measuring lying times by marking specific cows with bright paint and putting up cameras to observe her daily routine. Often, we can get the answers we are looking for if we take the time to see what the cows are telling us.

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to a new year!



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