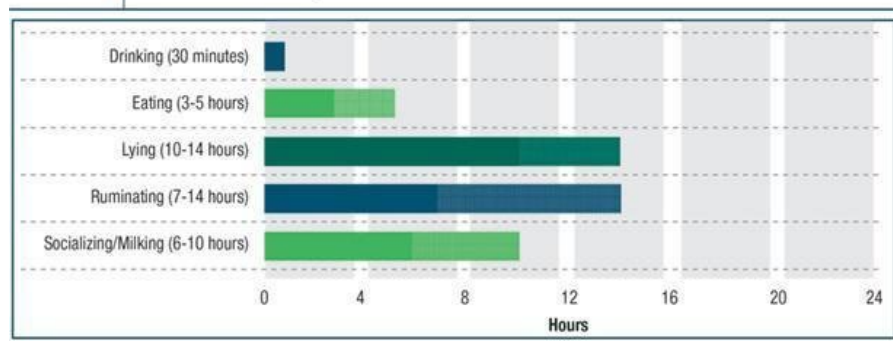


Cow Time Budgets

Every farmer and cow have only 24 hours in their day. For cows, the consequences of how those hours are spent will have significant impacts on both their productivity and health. Dairy cattle have time budgets for drinking, eating, lying, ruminating and socializing/milking. In this newsletter, these time budgets refer only to free stall cattle. Tie stall cattle have the same need for rest and time management, however specific time budgets have not yet been established.

Cattle spend the majority of their day **lying or resting** (12-14 hr) and **ruminating** while either lying or standing (7-10hr); 3-5 hours are spent **eating** (9-14 meals a day, small frequent meals); 0.5 hours a day **drinking** and 2-3 hours a day **socializing**. Socializing can be done in conjunction with multiple other aspects of their day. This potentially leaves cows with 2.5-3.5 hours of time in a day for other activities. Those activities include milking, travel time to and from the parlour, and other management activities such as herd health and hoof trimming. If these activities exceed 3.5 hours a day, the cows will have to take it from one or more of their essential activities, and too often it is from feeding or lying times. The essential daily activities are extremely important and are critical for the cow's health, wellbeing and productivity.

FIGURE 1 Cow's natural time budget



Factors Affecting Time Budget

(1) Access to feed and water.

Cattle should always have access to fresh feed and clean water. It is critical to have at least 2 water sources per group in the event that a boss cow blocks one of the water sources. In free stalls, there should be at least 4" of linear water space per cow. Ensure that there is always fresh feed available with adequate bunk space (24" of linear bunk space per cow).

(2) Access to rest area/ stalls

As the size of cattle varies from herd to herd it is important to ensure that the stalls on your farm are the appropriate dimensions for your cattle. Stalls should be cleaned at least twice a day and adequately bedded. The amount of bedding affects both lying times and the amount of perching: more bedding = greater lying times and less perching.

(3) Stocking density

Based on the Dairy Code of Care and Handling of Dairy Cattle, it should not exceed 120%. In the transition groups stocking density should not exceed 80%. **Overstocking** leads to altered feeding behaviour/ increased aggression and displacements, reduced lying time (increased time standing in the alleys), decreased rumination, decreased milk production and milk fat, increased risk of metabolic diseases, reduced fertility and occasionally higher somatic cell counts.

(4) Animal handling and management.

Low stress, quiet handling is recommended
Minimize group changes.

Every time a cow is added to a group there is a change in the amount of physical and non-physical interactions. There is an increase in physical interactions for up to 2 weeks post-group change. In the first 1-2 days there is increased displacements from the feed bunk, feeding rate increases and there is a decrease in lying time up to 20% (i.e: from the required 12 hours a day to 10 hours which can decrease milk production by 1.8-3 kg per cow per day!)

Minimize group shifts and movements during the transition period. Herds with 3 or more moves during the transition period (3 weeks pre-calving to 3 weeks post calving) typically have twice as many displaced abomasums as those with 2 or fewer movements.

- (5) Time spent away from the group**
- (6) Temperature and humidity index**
- (7) Light intensity**
- (8) Floor traction**

The ultimate desire for cattle is to rest. The longer they are unable to do so (milking, locked in headlocks, overcrowding leading to stall competition etc.) the drive to rest becomes greater and they will sacrifice the ability to eat so they can rest. Research has proven that for each additional 1.5 hours of standing per day there is a $\frac{3}{4}$ hour reduction in eating time. Therefore, it is critical to avoid overstocking. A stocking density of 115-120% (15-20% more cattle than stalls available) leads to a reduction in rest time of up to 27%. Rest leads to increased milk production due to greater feed intake, greater blood flow to the udder (an increase of 1hr per day of rest translates to approximately 0.9-1.5kg more milk per cow per day), increased rumination effectiveness, and less stress on the hoof and therefore less lameness. Management activities that facilitate rest and overall well-being include (1) delivery of fresh TMR twice a day, (2) feed availability following milking, (3) regular feed push-ups, (4) appropriate stocking density, all of which help ensure appropriate social interactions and less fighting for social hierarchy.

Cows love consistency. If we can achieve that consistency on a daily basis the cows will be more productive and healthier, leading to increased profitability. If you have questions about time budgets in your herd, please speak to your veterinary team as they are well situated to assist you.

Dr. Jenn Reynen