

“Why, Oh Why, Do I Need To Do That?”



By Donna M. Amaral-Phillips

Understanding the Why's Behind Milking Time Practices

Young children's favorite questions often revolve around asking the “why” behind needing to do something or understanding of a given concept. That curiosity and a desire to understand the why behind concepts and practices continues throughout one's life. From a manager's standpoint, understanding the “why” behind a given management practice can help one, and more importantly those working on your dairy, appreciate the importance of completing daily tasks in a defined way. With all the ongoing tasks filling ones' day, short cuts can become the new norm. Sometimes these shortcuts resulting in new habits are acceptable, but more times than not, they result in an outcome counter to the one desired. This can be especially true when it comes to the twice or three times a day task associated with milking cows and even the daily routines of the people that manage cows in robotic milking systems. As my father instilled in me early on, “milking time is where you make your money!”. So why not take a few minutes and review with all of those directly or indirectly associated with this important practice the whys behind routine milking-related management practices.

Resting Surfaces for Cows

The daily maintenance of the bedding on the surface of stalls and bedded packs is important in providing a comfortable, well-bedded, and dry surface for cows to lie down and rest for 12 to 14 hours daily. Bedding surfaces and bedding materials need to have a minimal amount of contamination from manure and, as such, the chore of maintaining these surfaces needs to be completed twice or more times daily depending on the housing system. Using proper amounts of bedding (sand bedding ≥ 6 inches deep such that the curb is not exposed, mattresses and mats bedded with ≥ 1 inch kiln-dried sawdust) helps improve cow comfort by reducing the number of cows with hock lesions and incidence of lameness. Bedding also helps wick moisture away from the udder and keeps cows cleaner.

The backs of stalls need to have manure removed and stalls groomed at least at each milking and new bedding added, as needed, to provide a smooth, dry, relatively clean, and adequately bedded surface. Sand bedded stalls should have sand added such that the back curb is not exposed and sand is relatively level. Mattresses/mats should have at least 1 inch or more of fresh, dry bedding. These management practices help decrease exposure of a cow's teat ends to environmental bacteria. Often times, bedding toward the back of stalls is replaced using extra bedding located in the front portion of stalls. Studies have shown that replacing bedding in this manner may result in replaced bedding containing very high

Cooperative
Extension Service

Agriculture and Natural Resources
Family and Consumer Sciences
4-H Youth Development
Community and Economic Development

MARTIN-GATTON COLLEGE OF AGRICULTURE, FOOD AND ENVIRONMENT

Educational programs of Kentucky Cooperative Extension serve all people regardless of economic or social status and will not discriminate on the basis of race, color, ethnic origin, national origin, creed, religion, political belief, sex, sexual orientation, gender identity, gender expression, pregnancy, marital status, genetic information, age, veteran status, physical or mental disability or reprisal or retaliation for prior civil rights activity. Reasonable accommodation of disability may be available with prior notice. Program information may be made available in languages other than English.
University of Kentucky, Kentucky State University, U.S. Department of Agriculture, and Kentucky Counties, Cooperating.
Lexington, KY 40506



Disabilities
accommodated
with prior notification.

bacteria counts, as cows have contaminated that bedding with manure from their hooves. Thus, utilizing fresh bedding may be the best choice when replacing bedding in the backs of stalls.

Scraping of feeding and resting areas multiple times (usually twice) daily helps decrease the amount of manure cows walk through. This practice is part of not only reducing the exposure of teat ends to environmental causes of mastitis, but also decreases infectious causes of hoof diseases, such as foot rot and hairy heel warts.

Moving cows to the parlor or barn

Calm, quiet handling of dairy cows is essential for proper and efficient milk letdown. Stressed or frightened cows release the hormone, epinephrine (also known as adrenaline), which blocks the actions of oxytocin. Oxytocin is the hormone responsible for milk letdown. The negative effects of epinephrine can last for 20 to 30 minutes, thus illustrating the need for calm, smooth handling and movement of cows around milking time, be it to the milking area (holding pens or barn) or the completion of feeding chores just before or during the time cows are milked.

Cows should be moved using a zip-zag pattern of movement from the back of a group of cows versus walking directly behind them in a straight line. Cows walk at half the speed of people (2 versus 3 to 4 mph). This pattern allows for the person walking with the cows to remain behind the shoulders of cows at the back of the group, thus moving cows forward at the cows' normal walking speed resulting in the calm and efficient movement of cows toward the barn, parlor or milking setup.

Milking Practices

The proper execution of milking practices can help decrease the incidence of clinical and subclinical mastitis. All of us have seen these practices listed many times before, but the key is to practice each of them correctly at each and every milking. These protocols start with the people milking cows wearing disposable nitrile or latex gloves. Gloves are used to prevent the spread of disease, not only between cows, but also to prevent disease in people milking the cows. Our hands contain many cracks and crevices that bacteria can hide within, colonize, and allow for spread of bacteria between cows and within humans.

Predip must be applied to the lower $\frac{3}{4}$ of all 4 teats, remain on the teat for 30 seconds, and then wiped off, including the very bottom of the teat, using a single-service paper towel or properly washed and dried cloth towel. Towels should not be used on more than a single cow; this practice includes not turning the towel over and wiping a second cow. Predip contains a germicide designed to kill environmental sources of mastitis-causing bacteria, but to be effective must remain on the teat for 30 seconds. Stripping 3 to 4 streams of milk from cows before attaching the milking unit helps with milk letdown, flushes bacteria from the teat end, and allows one to detect abnormalities in milk and provide follow-up evaluation and attention for cows when needed.

Milking units should be attached within 1 to 2 minutes after first touching the udder. To accomplish this, the correct number and order for attaching milking units must be followed. This practice is necessary for proper and timely milk letdown. Within 30 seconds of touching and/or cleaning the teats, oxytocin is released into the blood stream, which in turn results in milk flowing from the cells that synthesize milk, known as alveoli, into the ducts and cisterns of the mammary gland. Less than 20% of the total milk production is stored in the gland and teat cisterns and, thus, the majority must be "released" from the alveoli cells. For efficient oxytocin release, cows must not be frightened during the milking process and a repeatable milking procedure needs to be followed with the milking units attached within 2 minutes of the start of prepping the cow. Attaching the milking units too soon or too late will result in a delay in milk let-down and possible damage to the teat ends by the milking machine. This damage to the teat ends, known as hyperkeratosis, results in excess tissue at the teats end that bacteria can colonize and increases the chances of a cow getting mastitis.

An effective post-dip should be applied to all 4 teats immediately after removing the milking unit, such that the bottom $\frac{3}{4}$ of the teat is covered. In robotic milking systems, managers need to check often that robots are applying post-dip adequately to all quarters of several cows in all robots and, if necessary, adjust the calibration for proper coverage. Post-dipping kills a significant number of bacteria on the teats, helps heal skin lesions, and optimizes teat skin condition. All of these factors help reduce the chances of bacteria entering the mammary gland. Post dipping is especially effective at reducing bacteria that are spread from cow to cow at milking time, such as *Staph. aureus*. Consistent application of post-dip helps reduce new infections, but will not reduce or eliminate existing infections. Teat dips should be stored in a cool, dry area and not allowed to freeze. Dip cups should be emptied and cleaned after every milking or if they become contaminated.

Bottom Line

The consistent and proper implementation of practices associated with the cleanliness of the resting areas, movement of cows to the milking area, and milking practices all have a direct impact on milk quality and production. Managers first need to understand and review on an ongoing basis why protocols must be followed in a certain manner. This information and understanding then needs to be conveyed and reemphasized to others involved in the milking process on farm. As my father correctly imparted to me as a young girl, “milking time is where you make or break your finances on a dairy”. Why not take time to review the why’s behind this important practice and with those who share the milking chores on your dairy operation?