

Prevention and Control of Winter Teat Problems

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Since temperature (both raw wind chill and changes) are the major predisposing factors to winter teat changes, the number one objective should be to control exposure to these weather factors as much as possible. The second objective should be to minimize other teat stressors that exacerbate the problem should cracking or freezing occur. The third objective is to keep the teat disinfected, healthy and soft as much as possible through proper milking procedures. The final objective is to minimize secondary bacterial infections through proper milking practices and environmental sanitation.

Controlling cold temperature exposure:

1. Provide windbreaks if animals have to go outside. At wind speeds of 5 mph or less, -20° F can be tolerated.
2. Feed and house cows indoors during cold weather when possible. Often in stall barns that feed outside, the colder it gets, the less time animals get outside to eat.. This creates great temperature changes within each day and results in greater teat cracking.
3. Avoid drafts in buildings by keeping ventilation and openings controlled properly. Leaving large doors open in free stall barns can create wind tunnel effects. Cracks and openings in stall barns can lead to draft and cold rapid air movement on floor surfaces.
4. Avoid directly putting animals into extreme wind chills post milking. If this can't be avoided, steps to minimize frozen teat dip on the teat end should be instituted or other practices should be implemented (see milking practices section)

Controlling stall / bedding environment:

1. Having comfortable, dry areas or stalls for animals is critical.
2. Dry bedding is a must. Wet bedding not only enhances body surface heat loss, but risks wet teats, thus increasing teat problem risks.
3. Bedding must be maintained and changed at appropriate intervals. Most people assume it is cold so bacteria will not grow or grow slowly. Recent work from Minnesota showed that stall surface was only about 8° less than body temperature (92-93°F) when animals were lying on the surface. Therefore, bedding maintenance is critical to reducing bacterial exposure.

Milking equipment:

1. Maintain proper functioning of milking equipment.
2. Check and maintain vacuum and milk line hoses, pulsators, inflations, and vacuum level.
3. Keep pulsators clean (at least monthly). Dirty pulsators mean improper massage.
4. Change inflations on schedule.
5. Too high vacuum level or fast pulsation rate may traumatize teats due to increased teat congestion or inadequate massage. D phase massage should be at least 180-200 milliseconds.

6. Too low vacuum level or slow pulsation rate can lead to increased unit on times, prolonging teat stress from milking. Often people blame winter teat problems on the machine so they lower vacuum or slow pulsation. This often accentuates the problem so should be avoided unless warranted.

Premilking sanitation:

1. Use procedures that maximize teat disinfection and skin conditioning while minimizing irritation or trauma.
2. Avoid washing teats in cold weather, if possible. Washing removes natural oil from the teat and the drying action associated with large liquid volumes can be abrasive.
3. Predipping with a good germicidal dip with skin conditioner is the preferred way to sanitize teats, especially during winter. This allows for a passive disinfection and conditioning with maximal coverage to all surface areas with minimal irritation or rubbing.
4. Blot teats dry instead of rubbing to minimize irritation on problem teats.
5. Use milking hygiene practices similar for controlling contagious mastitis (clean hands, gloves, individual towels (cloth preferred : dry teats more thoroughly with less abrasion)).

People / Milking machine / Time Interactions:

1. Proper pre and post milking sanitation are critical to minimizing teat trauma.
2. The milking machine is a teat stressor, even when the machine meets all specifications and is working properly.
3. Excessive unit on time has been shown to be the major factor in hyperkeratosis.
4. The two major reasons for excessive unit on time are related to people, not equipment.
5. It is imperative that milkers utilize proper techniques to maximize unit performance (maximum flow/unit time) and minimize teat stress (extended milking due to low flow rates or gross overmilking).
6. Proper pre-milking sanitation procedures that maximize stimulation and allow for unit attachment within 1-1.5 minutes from initial stimulation are critical to maximize milk letdown and flowrates and minimize extended periods of milking due to low flow.
7. Strict attention should be channeled to minimize overmilking (failure to detach unit although cow is milked out) since any extra machine on time prolongs milking time teat stress.
8. Automatic detacher settings can be set aggressively (shorter or no delay, higher flow when detached) only when proper pre-milking stimulation and prep lag to unit attachment are achieved. Start by assessing current delay and flow rates for detaching. Decrease delay setting 50%per week until proper endpoint is reached (0-3 seconds). After this, increase the flow rate endpoint. Some aggressive herds have gone to 2-3 lb. flow endpoints. One-two lbs. is recommended. One should also consider setting maximum milking time/cow at 7-10 min.

Summary

1. It is important to understand the normal distribution of teat ends and not make rash decisions or changes when SCC goes up, especially in winter.

2. Teat end changes can occur rapidly, in winter with dehydration and cracking, and other times with acute machine problems. This is usually associated with weather changes and is accentuated through the normal milking process since milking changes the tissue hydration status and enhances this drying/ cracking.
3. Minimizing the weather effects through proper facilities and environments is the #1 objective.
4. Proper milking equipment and practices are critical to minimizing negative effects on teat ends.
5. Some practices may need to be altered or adapted during cold weather(dipping, blotting, etc.)
6. Advantages and disadvantages (including costs and enhanced other risks) should be carefully examined when evaluating using new technologies or products like teat dips.
7. To date we have found no protocol that stops cracked teats completely during winter.

This month's insert on the prevention and control of winter teat end lesions is summarized from a presentation by Dr Leo Timms of Iowa State University at 43rd Annual Meeting of the National Mastitis Council. We greatly appreciate his contribution.