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Importance of Teat Dip During Winter

This article is a summary of an article written by Mireille Chahine and Mario E. de Haro Martí from the University of Idaho in the Udder Topics newsletter from the National Mastitis Council.

The dipping of teats at the end of milking has been proven to be an effective management tool to limit the number of new cases of mastitis in dairy cows.

Many researchers regard teat dipping as the number one tool to reduce new intramammary infections in lactating cows. Infection of the udder with bacteria requires bacteria to penetrate the teat canal to get into the quarter. One of the factors that cause bacteria to enter the teat canal is the number and type of bacteria on the skin of the teats. Many research trials have proven that the use of teat dips will limit the bacterial population on the teats and reduce bacteria entering the udder.

The best way to protect cows from harsh winter conditions is through adequate facilities. That includes adequate housing and ample, clean, dry bedding. Ensure dairy animals have access to well-constructed and insulated shelters to shield them from extreme winter weather, including cold temperatures, wind and precipitation. Drop curtains in freestalls during cold weather to minimize wind speed and alleviate wind chill, while still maintaining adequate ventilation.

Dairy producers question whether they should continue dipping during cold weather and at what temperature they should modify their procedures to reduce the occurrence of frostbite on teats. Cracked and irritated teats create a conducive environment for mastitis-causing bacteria. **Preventive steps must be taken whenever there is a chance for the wind chill to be less than 25 degrees Fahrenheit.** The primary concern is to reduce frostbite injury to teat ends.

Do not store teat dips where they will freeze. Follow manufacturer recommendations for storage. Choose a teat dip that is effective against common mastitis-causing bacteria. Look for teat dips formulated for winter conditions, protecting against harsh weather. There are powder formulations for extremely low temperatures. Avoid using barrier dips in winter as they tend to be a slow-drying option due to film-forming



Pictured at left and below are examples of frost bit teat ends or Hyperkeratosis. Follow operating procedures put in place in specific wind chill temps to prevent frostbite but also continuing to dip teat ends to prevent mastitis.

characteristics. A slower-drying dip can leave wet teats exposed while cows are returning to their holding areas. Prevent frostbite by allowing cows to remain in the parlor or return lanes until the teat dip has dried. An absorbent towel could also be used to blot the teat dip after allowing 30 seconds of contact time and before returning the cow to the cold housing area.



It is not recommended to quit post-dipping because teats are still wet post-milking, which could still lead to severe cases of chapped teats and teat ends. Establish a "winter teat dip" standard operating procedure that should be implemented whenever a specific wind chill temperature is reached. Train farm personnel to implement the protocol and recognize signs of frostbite. Ensure that staff members are vigilant and proactive in addressing potential issues.

Check the weather forecast for cold, windy conditions and invest in a small weather station that provides information on temperature, humidity, wind and wind chill. These tools will help you and your

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personnel make faster and more effective decisions. Evaluate cows' teat ends by assessing at least 20% of your herds' teat end condition post-milking. Rough teat ends, known as hyperkeratosis, present increased difficulty in cleaning and tend to harbor more bacteria.

A sound mastitis prevention program should include pre- and post-milking sanitation, regardless of the

weather. Udders and teats should be clean and dry before machine attachment. Maintain the milking system. Plus, milking technicians should follow approved milking procedures. By implementing these best management practices, dairy farmers can help ensure the health and productivity of their animals during the winter season.

Prototheca Mastitis is an Emerging Concern

Prototheca mastitis is an emerging mastitis concern on dairies. Prototheca are colorless algae that can cause mastitis in dairy cattle. The first reported case of mastitis caused by Prototheca was in 1952. Prototheca are usually found where you have the combination of a wet environment and decaying manure and plant material. Prototheca can be found in bedding, forages, standing water, flowing water, milking parlor wash water, manure, teat dip containers, and milking machine liners. Although it is not considered a likely source, Prototheca can be carried by other animals such as cats and rodents. High humidity has been associated with high levels of Prototheca in the environment. One of the problems with managing Prototheca is that just because you find it in the environment, that doesn't necessarily mean that it is the source or that it will cause a problem in the dairy. Researchers have called Prototheca a, "Ghost Organism," because sometimes it just appears and then disappears on a dairy.

Infections are believed to develop when high numbers of the organism are exposed to the teats of cows. This exposure can come from the environment of the cow or from contaminated milking equipment. Prototheca does not fit neatly into either the contagious or environmental classification of mastitis. It has properties of both. Cattle that are immunosuppressed are more likely to become infected. Fresh cows are often where the infections are first observed in a herd. Antibiotics have no effect on Prototheca mastitis cases. When cows are originally infected, they will often go clinical for 2 to 7 days, but afterwards the milk returns to a normal appearance and the cows become subclinical. The milk can range from a mild to a moderate change. Cows rarely become systemically sick from a Prototheca infection. Somatic cell counts can vary from below 200,000 to over a million. These chronic infections will last over multiple lactations, and the cows can become intermittent shedders which will become a source of infection for other cows. Infection rates vary from 0% to 40% in a herd. Occasionally, high bacteria counts in milk can be traced back to Prototheca mastitis cases. A breakdown in one aspect of a quality milk control program can lead to higher infection rates.

Once Prototheca is in the herd it is difficult to manage. The best results are obtained when it is found early. All aspects of the mastitis control program need to be in place. Trying to find the source on a dairy can be challenging. In some herds you cannot find it in the environment and in other dairies you find it everywhere. The infected cows need to be identified. If only the high somatic cell cows are cultured, about 15-20% of the infected cows will be missed. The best strategy is to start with string samples. Make sure the samples are sent to a lab that can identify Prototheca. There is a Prototheca Isolation Media that can enhance the likelihood of finding the organism. Suspected colonies of Prototheca should be confirmed under a microscope with the slides stained with methylene blue. Once a positive screening sample is found it should be verified with another culture before any changes are made with your milk quality program. If a string of cows is found to be positive, then every cow in the string should be cultured. Positive cows should be isolated and milked last. Once the infected cows are removed from the string, the string should be recultured several times because cows can intermittently shed Prototheca and therefore can be missed on a culture.

If there is a low number of cows found infected with Prototheca the best option is to cull them to reduce the chance of them spreading the disease to other cattle. If the infection rate is high, positive cows should be isolated and infected quarters should be dried off. After the quarters are dry the cows should be recultured because multiple quarters can become infected. Positive cows should be culled when they are not profitable. Extreme care should be taken in the mastitis pen because cows can be infected during treatments. New gloves and good hygiene should be used on every cow that is treated. Milking units should be backflushed after milking known Prototheca cows.

This is not an easy type of mastitis to manage. It is similar to Mycoplasma, but it is more dangerous because there is an increased chance of environmental spread. Every dairyman should be looking for this organism. Good hygiene and properly working milking equipment are essential to the control of this mastitis.