

GAIN CONTROL OF DIGITAL DERMATITIS

M-scoring diagnoses the disease in various stages to aid in effective treatment and prevention.

By Keith Sather

Acknowledged as a leading cause of lameness in the dairy industry, digital dermatitis (DD) is a widespread problem present on the majority of U.S. dairies. Also known as hairy heel warts, this costly and highly contagious disease progresses quickly. If not caught in the early stages, DD can result in permanent hoof damage.

Producing painful lesions, digital dermatitis typically attacks the skin above the heel bulbs but can also be found between the digits or in the area of the coronary band. It appears as a raw, bright-red or black circular erosion with edges forming a white margin that surrounds sores or is adjacent to thick, hairy, wart-like growths.

A disease that often leads to long-term lameness, cows suffering from digital dermatitis cost dairy farmers millions of dollars every year. The sting is felt through treatment costs, lost milk production and decreased reproductive performance. As feed intake plummets, the drop in milk can be drastic – a decline of more than 50 percent for several weeks is not uncommon.

Once digital dermatitis exists in your herd, how do you put a stop to its catastrophic consequences? The perfect place to start is with the diagnosis. Historically, DD has been recorded as an ulcer or lesion and perhaps given a severity rating. But this method is flawed as it fails to capture the complete picture. Instead, you must monitor the stage of disease. Is the cow in an early, treatable stage or is she in a chronic stage? Defining the stage of disease and tracking the movement between stages is critical. This is where M-scoring comes in.

The M-stages scoring system classifies cows showing signs of digital dermatitis into one of five stages: M1, M2, M3, M4 or M4.1. This rating system helps hoof trimmers and dairy producers gauge the effectiveness of current treatment and prevention protocols, which in turn, can help a farm break the vicious cycle of digital dermatitis.

DD is a quick-moving disease that can change stages in as little as 10 days. That's why knowing its exact stage is so important for choosing the correct course of action. The M-stages scoring system recognizes six stages of digital dermatitis:

M0: normal, healthy skin without signs of DD. (This stage is not recorded.)

M1: early stage – small, round, spotted red-grey lesion less than 2 cm in diameter located in skin tissue of the interdigital cleft. May develop into M2 or return to M0. Transformation from M1 into M4 does not always go through an observed M2 stage.

M2: acute, bright red or red-gray ulcerative lesion larger than 2 cm in diameter. Commonly found along the coronary band as well as around the dew claws, in wall cracks and occasionally, as a sole defect. Cows may cycle between M2 and M4.1.

M3: healing stage – lesion is covered with firm, black scab-like material. Healing can continue with lesions becoming M0 or it may regress to M2 or develop into a chronic M4 lesion.

M4: chronic stage – lesions may be dyskeratotic (mostly thickened epithelium) or proliferative (raised growths) or both. Proliferations may be filamentous, scab-like or mass proliferations. May return to M0 or progress to M4.1.

M4.1: chronically affected foot that displays M4 stage in addition to M1 stage – chronic lesion with new M1 lesions beginning on surface. May return to M4 or develop into M2.

Developed by University of Wisconsin – Madison School of Veterinary Medicine associate professor and epidemiologist, Dorte Dopfer, the M-scoring system is a highly effective way to diagnose and monitor digital dermatitis. Depicting the life cycle of the disease, M-scoring enables a dairy operation to accurately measure any economic loss or gain to their hoof health program.

Use M-stages scoring data to improve treatment and prevention

A chute-side data recording system with M-scoring capabilities can quickly sum up the total incidences of digital dermatitis on a dairy, by stage, in easy-to-read charts and graphs. The trimmer can then show the dairyman the extent of digital dermatitis on the dairy in a summarized format at the end of the trim day. Comparing current data with past data can illustrate the disease's progression or regression over time.

Once you know the stage of disease, you can focus on which treatment and prevention protocols to implement or improve upon. Different stages require different treatment protocols, and recommended protocols for each stage can vary from trimmer to trimmer.

The M1 and M2 stages are critical control points for halting digital dermatitis, and finding the M1 stage lesions is crucial for keeping the disease in check. At this point, the animal might have a small lesion starting in the cleft. Within just two weeks, she can cross over to the M2 stage and become lame. The accumulation of many M2 lesions launches an outbreak in the herd. There's a big difference in treatment costs between stages M1 and M2, therefore, catching DD while at the M1 stage saves significant money.

Once a cow has developed a lesion, she must be treated individually with antibiotics. Infected cows should avoid the footbath, as footbaths are designed for prevention, not treatment, of digital dermatitis.

Cows in the M3 stage have no lesions, indicating the success of current treatment/prevention strategies. Even though M3 is considered healed, it's still important to record this stage. Not doing so can send a false signal to the farm that everything is fine and there is/was no disease present.

Cows at the M4 and M4.1 stages are chronically affected with digital dermatitis, indicating permanent hoof damage. The M4 cow exhibits no pain, however, sheds the disease back into the environment, endangering herd mates. Out of reach from antibiotics, the disease is deeply embedded into the foot of the M4 cow. Therefore, these cows are closely monitored but not treated. M4 lesions typically reinstitute – a calamity that can occur three to four times in a single lactation. When the chronic cow becomes reactivated with a new lesion, she's now at the most advanced stage – M4.1 – and once again requires treatment. The M4.1 cow is expensive to an operation, running up a bill of about \$500 per lactation.

When data remains consistent and foot health is at the desired standard, no changes to current protocols are necessary. If you're seeing a lot of M2, M4 and M4.1 cows, then something is

amiss with current protocols. Footbath or parlor spraying practices may need a tune-up. If a significant spike in DD occurs, you must uncover the cause. Is it a footbath failure? Were new cattle introduced into the herd? Have any management practices been altered? Are there opportunities to improve hygiene?

A cycling between M2, M3 and M4 reflects poor foot bath management. Examine the footbath protocol – do you need to modify the chemical type or concentration? Adjust the frequency of the bath? Reduce the traffic rate?

Digital dermatitis demands daily prevention and treatment protocol attention. And M-scoring is a valuable tool for identifying where improvements can be made. To win the battle against DD, producers must look beyond the trim day and apply the same diligent approach to its treatment and prevention that is used to conquer mastitis. This will help the industry get ahead of the chronicity of digital dermatitis and prevent new cases from developing.

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