



Hoof health starts with the heifer

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Hoof health is essential for not only the overall health of the animal, but also for her welfare. Digital dermatitis (DD), or hairy heel warts, is an extremely painful condition for dairy cattle, reducing her ability to walk to and from the milking parlor, or to the feed bunk. Based on USDA NAHMS 2017 data, 16.8% of all cows and 2.6% of bred heifers have lameness on an operation.

Just like her mature milking cow counterpart, heifers are not immune to DD. Digital dermatitis is the highest cause of lameness in bred heifers, with 70.9% of all heifer lameness contributed to DD, more so than in the lactating herd where it was reported DD infected 36.0% of lame cows.

Impact of digital dermatitis in heifers

UW School of Veterinary Medicine research supports the negative impacts of DD on health, milk production, and reproductive performance during the first lactation of a heifer diagnosed with DD pre-calving. The cost of DD can range between \$3 and \$239, based on individual first-lactation milk yield, per heifer. Digital dermatitis in heifers leads to an increase in DD events during their first lactation. Based on study by A. Gomez (2015), 45.6% of heifers having a DD event during their first lactation had at least one DD event before calving and increased to 67.6% of heifers during their first lactation if they had two or more DD events before calving.

Prevention and control of DD within the lactating herd starts with the replacement herd. Young, pre-calving heifers go through several changes in terms of movement and regrouping into breeding, post-breeding, pre-fresh, calving, and post-fresh pens. University of Wisconsin School of Veterinary Medicine's Dr. Dörte Döpfer indicates it is around the breeding age, 12 to 14 months of age, when the maximum peak of active DD lesions occur in the pre-calving heifer. If not properly managed, a chronically DD infected dairy replacement herd can



increase the DD pressure of the lactating herd once they calve, even if the lactating herd has a well-managed DD prevention and control program.

How do heifers get DD

The environment predisposes heifers to the pathogen, *Treponema sp.* Many times, pre-calving heifers are not in optimal housing, and may be found in calving pens which neighbor sick and/or dry cows. Facilities may be older, repurposed housing for heifers with cleanliness and ventilation challenges. Heifer barns may not be cleaned as often, or overstocked, providing an abundance of manure, moisture, and exposure of pathogens to the feet.

Digital dermatitis control in pre-calving heifers is the best chance for prevention and control of DD in lactating cows.



Keeping the feet as clean and dry as possible minimizes the amount of organic matter and possible pathogen load on the feet. Alleyways may need to be scraped more often or stocking density reduced to lessen the amount of manure in the alleys. Additional bedding, lower stocking density, and properly sized stalls will encourage heifers to lay in stalls for long periods of time.

Detection

Penn State's Dr. Jud Heinrichs suggests evaluating the prevalence of DD in your heifers at the time, or shortly after, calving. If more than 5% (ideally less than 1%) of heifers have DD lesions at calving, evaluate your heifer program for DD onset and prevention in heifers.

Dr. Döpher states when going on the DD hunt, conduct pen walks, looking for active DD lesions on the rear feet. Start with the oldest heifer pen and work toward the youngest aged heifers to find the source of infection. Identify the pen of heifers with the maximum prevalence of active DD, those animals acutely lame with large ulcerative lesions. There may be heifers in the older groups who may have chronic DD, with occasional flare-ups of active lesions, but the key is to look for the pen or age group where the highest prevalence of active lesions is occurring. Once the pen has been identified, calculate the age of heifers 60 to 90 days earlier and look at this age group. This is the pen where DD prevention and control measures, such as foot baths, topical treatment, and cleanliness, must start.

Treatment and control

Digital dermatitis is extremely difficult, if not impossible to eliminate, therefore the focus should be on managing and controlling DD. Footbaths do not cure, rather, they are a management practice designed to maintain existing DD in an inactive state (Stage M4). Treating active (Stage M2) DD lesions on individual heifers reduce the reservoir of infection which in turns reduce the incidence of

spreading the *Treponema sp.* pathogen to other herdmates.

Acute lesions should be detected early and immediately treated topically with oxytetracycline through a valid Veterinarian-Client-Patient-Relationship (VCPR). One should not wait for days or weeks until the next hoof trimming, as this gives the heifer an opportunity to spread *Treponema sp.* pathogen to others and the within the environment. The first treatment maybe the only opportunity to heal the active M2 lesion and make them turn into clean skin or a non-active M4 lesion. The lesion should be cleaned and dry, removing all organic matter. Many facilities are not equipped to handle individual applications for heifers, therefore work with your veterinarian and team to determine the best course of treatment application.

Copper sulfate footbaths are utilized to help maintain and control chronic DD lesions in an inactive (M4) state, thus preventing the spread of DD to noninfected animals. However, footbaths are not always the easiest to implement or maintain in a heifer facility. Footbaths can be an excellent way to prevent DD, but if not maintained properly can do more harm than good to foot skin health, or even be a source of infection if not removed after use and left to collect manure and urine between treatments.

Feeding trace minerals has been shown to improve hoof health and the overall immune function of the heifer. The improved condition of the skin around the hooves and the general hardness of the hooves helps to reduce the incidence of DD.

Hoof health starts with the heifer and begins with an ongoing prevention and control system to prevent, manage, and control the impact of DD in the milking herd.

Developed by UW-Madison Extension Regional Dairy Educator [Tina Kohlman](#) for the UW-Madison Extension Three-Part "Walking Strong" Hoof Health Webinar series, 2022. Reviewed by Aerica Bjurstrom, Extension Regional Dairy Educator. References upon request.