Early Digital Dermatitis Detection and Treatment

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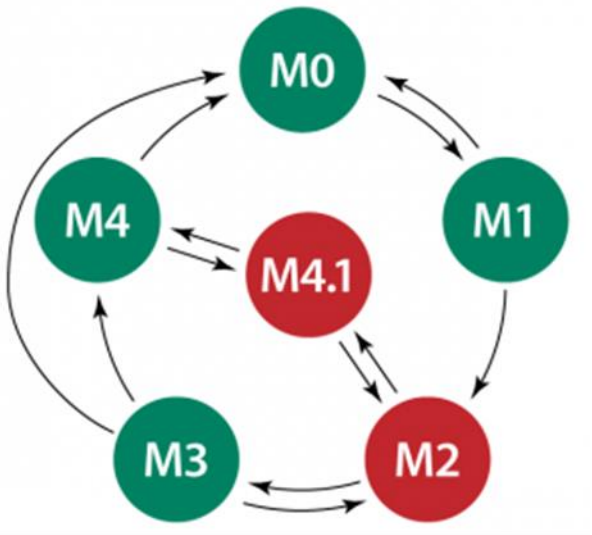
Digital dermatitis (DD) is by far the most common hoof lesion found in confinement-housed dairy cattle. DD lesions, resulting from bacterial infection of the skin of the heel and/or interdigital space, develop quickly through the several M-stages illustrated below. After initial infection (M1) of healthy skin (M0), the bacteria rapidly produce the active, strawberry-like and very painful M2 lesion which causes the animal to exhibit lameness. M2 lesions may heal or they may progress to less-painful, scabbed-over M3 or chronic wart-like M4 lesions where the bacteria encyst deep in the skin. Bacteria re-emerging into the surface layers of M4 lesions may reactivate (M4.1), resulting in new, painful M2s.

Prevention of DD focuses on biosecurity, maintaining good barn hygiene and routine foot bathing. Treatment of DD infections is typically only done by hoof trimmers at their infrequent visits—usually by applying antibiotic and bandaging for a few days. But, because new infections can rapidly advance, early detection and treatment is necessary to minimize new outbreaks of active lesions.



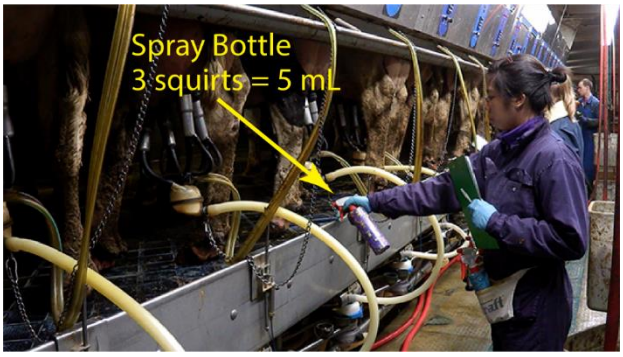
Digital Dermatitis Infection Dynamics

Over the past few years, researchers at the University of Calgary's Faculty of Veterinary Medicine have been working to develop a practical way to routinely identify and treat painful DD lesions in the milking parlour. The first step was to develop a way to accurately detect lesions The solution involved a 50¢ cosmetic mirror glued to a $2 kitchen spatula, sliding this device under the heel of the cow as she stood in the parlour. A headlamp was found to be an effective aid to improving visibility (see photos below).

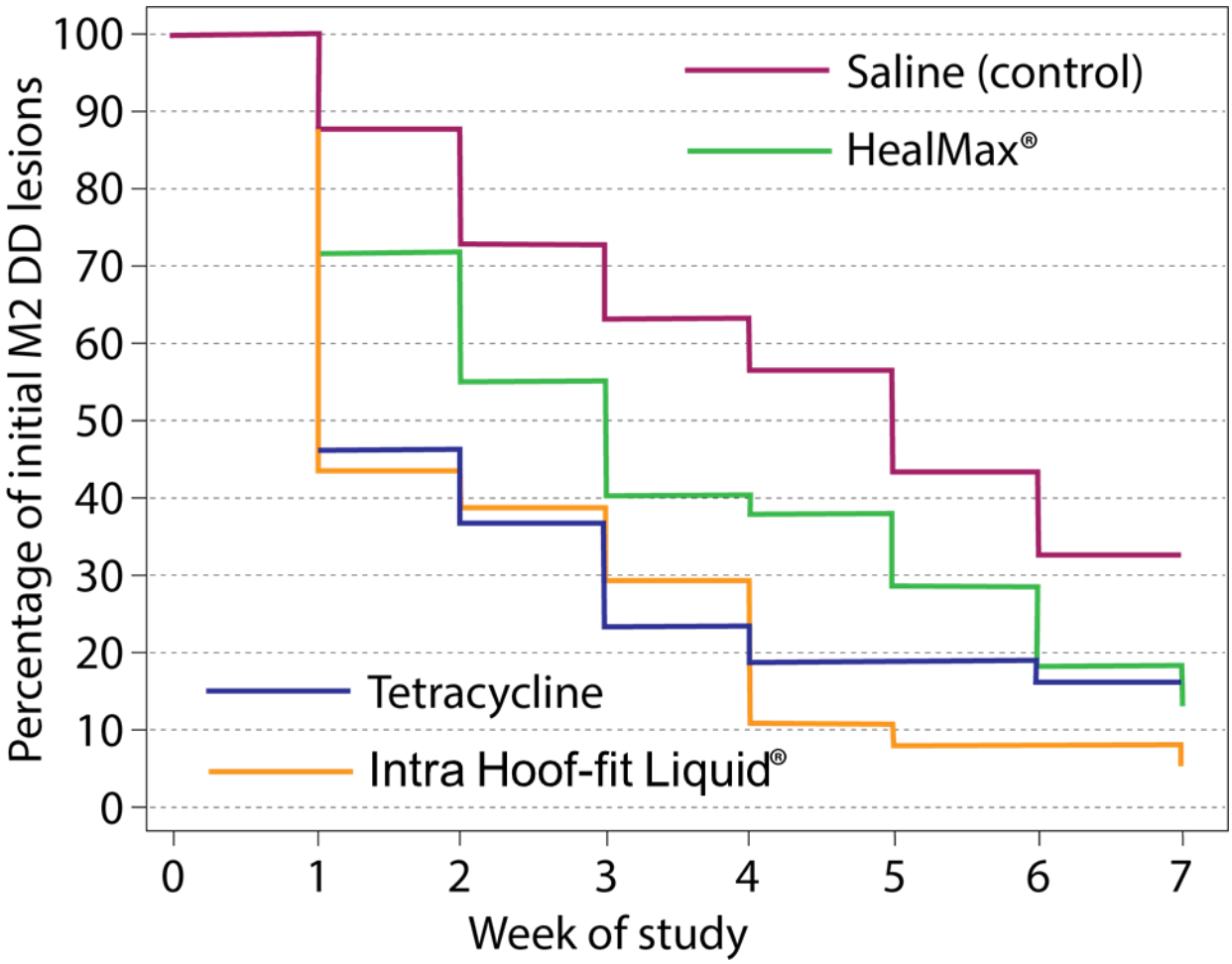
The next challenge was to determine whether treating lesions in the parlour could be practical and effective. Ten central Alberta herds were visited weekly for 8 weeks. On the first visit, the hind feet of all cows were examined for the presence of DD lesions.

Cows with M2 lesions were randomly assigned to treatment with one of four solutions applied with a simple $3 spray bottle (see photo below). Treatments were applied at each subsequent weekly visit after first rinsing the feet with high pressure water.

Results of the study are illustrated in the graph below. Notice that even the saline treatment resulted in a decline in the percentage of M2 lesions over 7 weeks, likely due to thoroughly rinsing the feet before treatment. By the end of the trial, the number of lesions in the saline group only had decreased to 32% of the number at the start. Over 7 weeks HealMax® reduced lesions to 18%, Tetracycline to 16%, and Intra Hoof-fit Liquid® even to 8% of their original numbers.



Intra Hoof-fit Liquid® produced a 57% decline in M2 lesions after a single treatment, equal to that of tetracycline, and offering the additional advantage of avoiding any risk of milk antibiotic residues.



The bottom line is this: occasional (1x per week in this study) thorough rinsing of hooves can be an effective way to reduce M2 DD lesions. Additional weekly treatment with an effective antibacterial product can further reduce the prevalence of these painful, lameness-causing lesions.