



Effective Footbath Programs For Dairy Cows

When used properly, a footbath program can be an effective deterrent to development of hairy heel warts in the dairy herd¹. If used improperly, a footbath program can be costly, dangerous, and actually contribute to the spread of hairy heel warts. Here are some guidelines for using a footbath effectively.

Footbath Size And Location

The footbath should be located in the return alley the cows use to exit the milking parlor. In order to prevent cows from stalling in front of the footbath and blocking the return alley, the footbath should be located two-thirds of the distance down the lane from the milking parlor.

Manure contamination quickly neutralizes treatment solutions. Therefore, it is best to place two footbaths in the lane with the first containing only water to wash the manure off the hooves and the second to contain the treatment solution. The distance between the wash bath and treatment bath should be four to six feet so that there is not carry over of the wash solution into the treatment solution.

The footbath needs to be at least eight feet long, preferably ten feet. It should be at least five inches deep and as wide as the return alley. The bottom of the bath should be just rough enough to prevent slipping.

Frequency Of Use

The main criterion for determining frequency of use of the footbath is the cleanliness of the cows' legs. Herds with more manure contamination of the lower legs will need to use the footbath more often during the week. A simple scoring system of

1 to 4 can be used to determine leg cleanliness and therefore frequency of footbath utilization. A clean lower leg = 1, a leg with splashes of manure = 2, a leg with plaques of manure but hair is visible = 3, and a leg with manure plaques and hair is not visible = 4. After scoring at least 20% of the cows in a free stall pen or 100% of the cows in a tie stall barn, use the chart below to determine the frequency of footbath use needed.

% Of Cows Scoring 3 or 4	Comment	Frequency Of Footbath Use
< 25	Good	As needed
25 – 50	Fair	2 days/week
50 – 75	Poor	5 days/week
> 75	Very Poor	7 days/week

Stage of lactation can also be factored into frequency of footbath use. Early lactation cows should be run through a footbath at the maximum frequency determined by the scoring system described above. Late lactation cows may be treated at 50 to 75% of the frequency of early lactation cows. Close-up dry cows should be put through the footbath two times a week.

Treatment Solutions

Treatment solutions can be divided into two general classifications: cleaning agents and disinfectants.

Cleaning agents only clean the hooves. This allows oxygen to get to the interdigital spaces and retard pathogen growth. Examples of cleaning agents are soaps and rock salt. Cleaning agents can be used in rotation with disinfectants during the weekly footbath program, but they should not be used as the only treatment solution during the week.

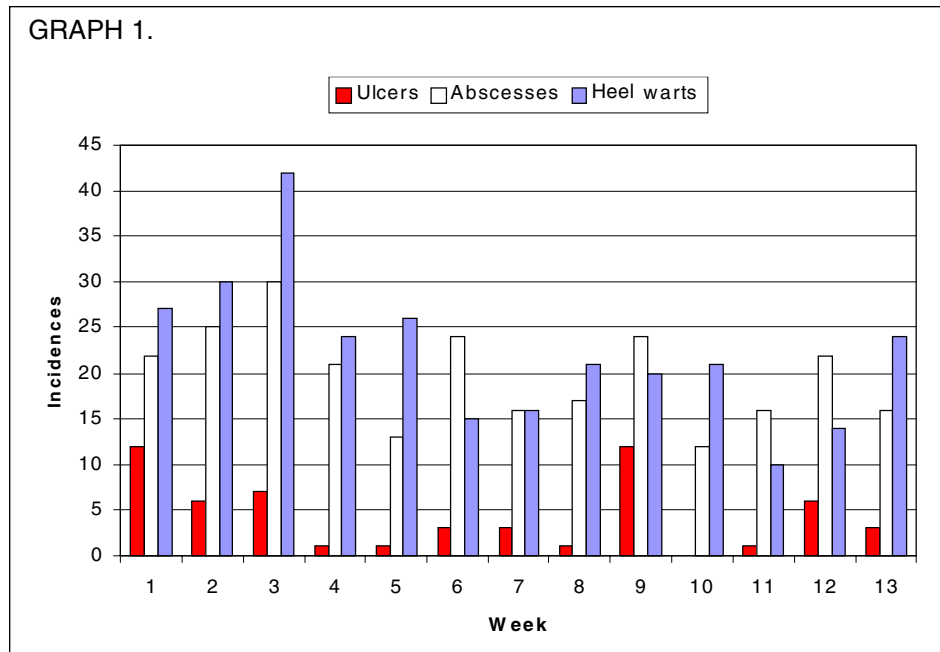
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Examples of disinfectants are copper sulfate, zinc sulfate, antibiotics, formalin, and a number of commercial products. Copper sulfate is the most common disinfectant utilized. A 5% solution (20 lb/50 gallon of water) does an effective job of suppressing hairy heel warts. This solution should be recharged in a footbath after about 250 cows pass through the footbath. If there is heavy manure contamination, the footbath should be recharged more often. A major problem with using copper sulfate is that its disposal with manure on farm ground has led to concerns about accumulation of copper in the soil. An accumulation of 100 ppm copper in the soil is toxic to crops, and copper is not readily removed from the soil.

Zinc is much less toxic than copper to plants and it is readily taken up and utilized from the soil by plants. The problem with using zinc sulfate in footbaths is that it is a very difficult substance to dissolve.

Antibiotics should only be used under the direction of a veterinarian when an extreme outbreak of hairy heel warts occurs. Formalin is effective, but it is very dangerous to people if they inhale its fumes or if it splashes on their skin or in their eye. Most commercial products utilize copper sulfate in combination with various additives that make the copper sulfate more potent. These products may contribute less copper than if using straight copper sulfate, but they still will be contaminating the ground with copper over time.

One new commercial product that does not carry the disadvantages of other products is **Hoof-Zink**. This product contains zinc rather than copper. Unlike zinc sulfate, it is a liquid that readily goes into solution. Research results from a 2,800 cow dairy in western Iowa (Graph 1) show that a 5% solution of Hoof-Zink is at least as effective as a 5% solution of copper sulfate.



¹Cook, Nigel B., School of Veterinary Medicine, University of Wisconsin, "Footbath Alternatives."