

# Prevention of Hoof Disorders Using Footbaths

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Dairy cattle are susceptible to many hoof disorders including (but not limited to) digital dermatitis (hairy heel warts), foot rot, laminitis, sand cracks, white line disease, and sole ulcers. Each of these conditions reduces a dairy cow's mobility and well-being and can lead to lameness. Reduction of pain associated with lameness is an important issue for the dairy industry given increased concerns with animal well-being among consumers. It is also important at the farm level because lameness results in lower feed intake, lower milk production, poor reproductive performance and an increased risk of culling. Every dairy producer has been disappointed when a good cow became lame and was no longer willing or able to go to the feed bunk. Lameness is a frustrating experience for both the cow and the farmer. As with any disease or disorder, prevention of hoof disorders is more effective than treatment.

Important preventive measures for managing hoof disorders are 1) keeping cows in clean and dry environments, 2) providing maximum cow comfort within facilities or pastures, 3) feeding balanced rations and 4) nutritional management. Many dairy producers also see improved hoof health after starting to use a footbath. The purpose of a footbath is to disinfect and clean the cow's hooves to prevent hoof lesions. Footbaths help prevent the spread of infectious lesions and harden claw walls to prevent noninfectious lesions. They are particularly effective for prevention of hairy heel warts.

A footbath consists of a concrete, plastic, or rubber reservoir filled with a solution of water and one of many different choices of effective footbath ingredients. Footbaths are typically 3 feet wide, 8 to 10 feet long, and 4 to 6 inches deep and filled with 15 to 25 gallons of solution. Footbaths should be placed on level ground. Often, cows walk through a separate footbath filled with water before entering the actual footbath solution to remove some of the manure off the hooves and keep the footbath solution clean for a longer time. Generally, footbaths are located in the return path from the milking parlor. Maintaining good footing within the footbath to minimize cows slipping is another important consideration.

Footbath solutions should be changed regularly to maintain effectiveness. If footbaths are not changed regularly, they essentially become "manure baths" rather than footbaths and may actually increase the spread of infectious hoof disorders rather than prevent. A good rule of thumb is to change footbath solutions every 150 to 200 cow passes. Solutions may be changed automatically or manually. The downside to the changing of a manual footbath solution is that changing tends to occur less frequently than it should. However, manual footbaths are considerably less expensive than automatic footbaths. On the other hand, automatic footbaths allow for frequent solution turnover and minimal hoof contamination. When using an automatic footbath, some cows may be startled by the noises created by the sensor, which could potentially lead to traffic bottlenecks or injuries.

Many different footbath ingredients are used with productive results. Formalin (formaldehyde in water) is one of the most common footbath solutions. Though it is popular because of its cost and effectiveness, it is also a carcinogen (cancer causing agent) and can be harmful to the people handling the solution. In fact, it has been banned in some parts of the world. If formalin is used, it is important to recognize that it loses its effectiveness when the temperature drops below 45 degrees Fahrenheit. Many compounds are used in combination

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with antibiotics; but it is important to recognize that the use of antibiotics in a footbath should only occur with consultation with a veterinarian and for a short period of time. With all footbath solutions, care should be taken to use proper concentrations or dilutions. Though it may be tempting to use higher concentrations, hoof or leg irritation may occur. Copper sulfate, zinc sulfate, mild common soaps, organic acid blends, quaternary ammonium compounds, and a wide range of commercial products are also used. While copper and zinc help harden the claw wall, disposal of copper and zinc solutions may have negative environmental effects. When deciding which solution to use, dairy producers should ask for data showing the effectiveness of the product with particular emphasis on prevention of digital dermatitis.

Footbaths can be an important part of a preventive hoof health program on dairy farms and can reduce lameness and its negative effects.