

Lameness prevention

The principles of foot bathing

Muireann Conneely and Ger Cusack, Hoof HealthCheck Technical Working Group Members

Why foot bathe?

Foot bathing is a key part of the prevention and control of infectious lameness-causing diseases in dairy cows. It is particularly important to manage digital dermatitis (DD, also known as Mortellaro's disease), which is a painful, infectious disease that can spread rapidly through a herd and cause significant lameness problems. In a recent Teagasc study, 44% of farmers reported having DD present, yet only 31% had a regular foot bathing programme in place.

Foot baths allow a disinfectant solution to be applied to each cow's hooves at milking time, which will kill infectious agents and improve hoof hygiene. It is important to foot bath correctly. If done incorrectly, foot bathing can be completely ineffective at best, or at worst may actually contribute to the spread of disease.



Important things to ensure when foot bathing

- Cow flow through the foot bath should be smooth. Ideally, the foot bath should be positioned near the milking parlour exit.
- The foot bath should not have any steps up or down, i.e., the bottom of the foot bath should be level with the walking passage.
- The foot bath should be wide enough. A foot bath should be a minimum of 700 – 850 mm wide. This will allow cows to pass one at a time with good cow flow. A foot bath of 3m x 850 mm works very well for herds of up to 250 cows.
- A foot bath 1.5 m wide and above will allow two cows to pass through simultaneously, and an advantage of a wide design is better cow flow. Herds larger than 250 cows should have a foot bath width of at least 2m.
- The foot bath should be long enough - a minimum of 2.5m and a maximum of 3m will allow each foot to be sufficiently immersed in the solution.
- Solution depth should be 100-125mm.
- Volume: 1 litre/cow passage. So if you have a 200 cow herd, you need a minimum of 200L of solution to foot bath the whole herd at once.

Precast concrete footbath measuring 850 mm x 3m



- Change solution regularly. A good rule of thumb is to allow one cow passage per litre of solution before changing. For example, a 200 litre foot bath needs the solution changed after 200 cow passages.
- To be effective, the reagents used in the foot bath must be used at the correct concentrations. To get the concentration right, you need to know the volume of the foot bath. Multiplying the length by the width by the depth of solution, measured in metres, will give the volume in cubic metres. Multiplying cubic metres by 1000 will be the volume in litres.
- Example: If you have a footbath 3 m long, 850 mm wide and with a solution depth of 100 mm, your volume will be 255L ($3\text{m} \times 0.85\text{m} \times 0.1\text{m} = 0.255\text{m}^3$, $0.255\text{m}^3 \times 1000 = 255\text{L}$). This will allow you to foot bathe 255 cows once, or 127 cows twice.
- Consult your vet about which foot bathing solution is best for your herd. Options include formalin, copper sulphate or other commercial products containing peracetic or organic acids. Antibiotics are not licensed for use in foot baths because this contributes to the growing problem of antimicrobial resistance, environmental contamination and ineffective treatment of underlying disease.
- The frequency with which cows need to be foot bathed depends on the prevalence and severity of the disease within the herd. It is best to consult with your vet to determine the best routine for your herd. Herds with a high prevalence of DD could need foot bathing after every milking until the disease is under control. Herds without a DD problem may not need to foot bathe at all (focusing on biosecurity measures is very important in this scenario; maintain a closed herd if possible, but if not, all bought-in animals should be foot bathed on arrival and quarantined for at least two weeks and checked regularly to ensure they are free from DD).



Important to note!

Foot bathing is not a substitute for the other important management practices that prevent lameness, i.e. a foot bathing programme will not solve a digital dermatitis problem if the yard and facilities are dirty and deep in slurry. Foot bathing is only one part of a larger lameness management plan!