

Footbath length and more 'steps' are key to successful digital dermatitis control

Three is the magic number!

Research has shown that, when it comes to footbathing, it's all about 'dunks' per hoof. We spoke to a vet, a manufacturer and a producer to find out why size, site and ease of use all matter when it come to footbath design – and how to optimise your herd's hoof care routine.

text **Rachael Porter**

Six seconds of contact time – that's three 'dunks' per foot. And this is key to ensuring that footbathing is effective in helping to treat and prevent and manage infectious claw diseases, such as digital dermatitis, according to the results of work carried out in the US and by UK-based vet Sara Pedersen.

And footbath design is crucial when trying to achieve the optimal number of 'dips'.

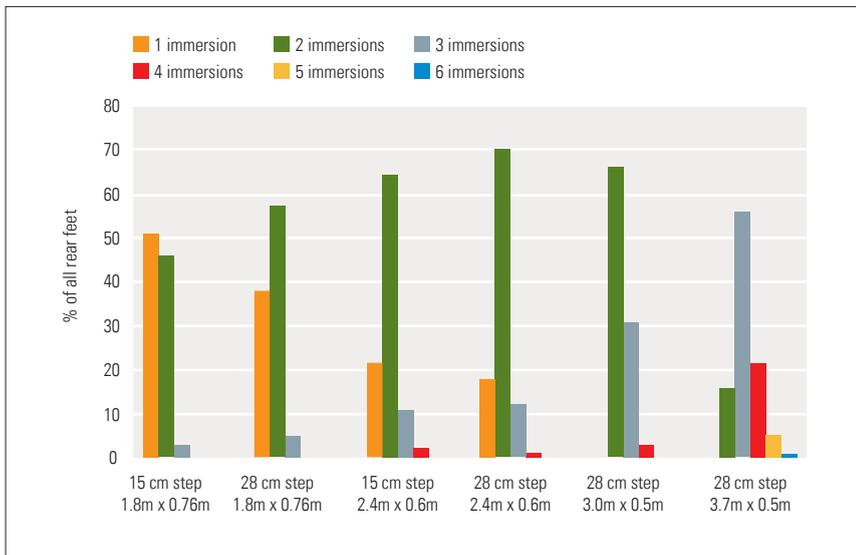
"If you want to incorporate footbathing into your herd's daily routine, a footbath on route from the parlour exit is a good place," says

Ms Pedersen. "The more accustomed the cows are to passing through it, the less disruption there will be to cow flow and the less contaminated the footbaths will become."

She's not keen on 'prewash' baths. "Using them doesn't seem to keep the 'treatment' bath cleaner. Trials have shown that more cows will defecated in the treatment bath, compared to the prewash bath. And the cows' feet are already wet when they enter the treatment bath, which make them less able to absorb the treatment solution."

Ms Pedersen adds that a prewash bath may also result in dilution of the

Figure 1: The link between footbath length and the number of hoof immersions



Too short: longer footbaths are required to increase 'dips' per hoof



chemical in the treatment bath and make it less effective.

A survey of 65 cubicle-housed dairy herds in five different countries, with an average herd size of 1,023 milking cows, found that footbaths were used between one and four times per day for between one and seven days per week, with between 80 and 3,000 cows passing through the bath between chemical changes. The most common agents used in the footbath were copper sulphate and formalin. Footbaths typically measured 2.03 metres long by 0.81 metres wide, and were filled to a depth of 11cm with 189 litres of solution.

Footbath dimensions

The observational behavioural study was conducted using a custom-designed footbath to test four different bath dimensions, with two different step-in heights. The number of immersions per rear foot was counted for each footbath design for each cow passing through the bath on two consecutive days.

Results showed that while a higher 'step-in' height significantly increased the number of foot immersions, the effect was small compared to the effect of length.

"When it came to bath length, the probability of each rear foot receiving at least two immersions reached 95% at a bath length of three metres and a significant increase in the frequency, of three and four immersions per foot, was observed in 3.7-metre long footbaths," says Ms Pedersen.

"In order to optimise the number of foot immersions per cow pass, while limiting the footbath volume, the work recommended a footbath that's 3.7 metres long and between 0.5 and 0.6 metres wide, with a 28cm instep.

Easy job

The ideal designs, in her view, are either 'built in' concrete footbaths or stainless steel baths – both are preferable to plastic. "Rigid plastic baths, with pronounced ridges on the bottom, can be uncomfortable for cows to walk through. Comfort and cow flow can be improved by using a rubber lining," she says, adding that good cow flow is important because it helps to reduce faecal contamination and displacement of the footbath contents.

"It is also important to consider the footbath position and how easy it is to fill, empty and clean out. The easier it is to maintain, the more frequently you

'Automatic' footbath with more length

The Hoofcount Excel automatic footbath – the only fully automatic footbath on the market that gives the veterinary desired 3.7 metre length and incorporates design features to ensure a thorough clean, quick refill and effective footbath for every cow – will be launched at this year's Livestock Event, to be held on July 8 and 9 at Birmingham's NEC.

This footbath has an electronic counter that monitors the number of cows that have passed through the bath and then, after a pre-set number of cows, the system automatically empties the soiled solution, washes the bath and refills it.

"While refilling a choice of chemical is automatically added to the solution to give a clean and effective footbath for every cow," says by the company's managing director Anthony Marsh.

"Our standard automatic footbath has worked well but we're always looking for ways to improve our product. And, with the latest footbathing research in mind, we've increased the length and depth of the Hoofcount Excel."

The new footbath is 3.7 metres long and 20cm deep, allowing each hoof to enter the bath an average of three times rather than, as with a standard bath of maximum three metres in length, two foot immersions per pass.

"A further development of sloped stainless steel side sheets allows the bath to be narrower and reduces the loss of solution through splashing," explains Mr Marsh. "The bolt-on side sheets allow the bath to be easily installed in any race without the risk of cows' feet stepping outside the bath. And the narrower design of the bath also ensures the total volume of solution and required chemical per bath is similar to that for a standard footbath."

The cost of the new footbath is between £6,000 and £7,000, including installation.



Hoofcount Excel: automatic emptying and filling saves time and helps to optimise the efficacy of footbathing

are likely to use it. Automatic footbaths, which empty and refill themselves after a pre-set number of cows have walked through, are a cost effective investment and make footbathing an easy job – not a chore. “

“Ideally cows should place each foot in the solution three times and the bath should also be long enough to prevent them ‘jumping’ it. So length of at least 3.6 metres is required.”

Reduce splashing

Ms Pedersen adds that fixing solid side panels to the bath helps to ensure that cows place their feet in the solution, rather than balancing on the sides of the bath.

“Side panels also help reduce significant loss of the treatment solution through splashing, as does a higher instep.

“And, to ensure that feet are completely immersed in the footbath solution, it must be filled to a depth of around 10cm.”

The Cheshire-based producer Mark Thomasson installed a longer – 3.6 metres – Hoofcount footbath 12 months ago. It's also narrower than his old concrete footbath, which was two cows wide.

“This one has sloping sides. It serves to ‘funnel’ the cows through the bath, one at a time, and reduces splashing,” he says.

The catalyst for investing in this footbath was predominantly the amount of work that changing the footbath solution, at least every day, was creating.

“We’re running a herd of more than 1,000 cows, so we were only footbathing half of the herd ‘effectively’. After 500 cows, the solution really needed to be changed – if time was tight then that would be the first job to be ‘dropped’ that day,” explains Mark.

The herd was put through the footbath around five times a week, but with the new system in place, at the parlour

exit, the cows now pass through it every day without fail – and in a solution that's automatically replaced after a pre-set number of cows have walked through it.

More 'dunks'

The length of the bath was also important – the previous one was around two metres long:

“It didn't offer enough ‘dunks’ per foot. We're now seeing each hoof dipped three times as the cow walks through the footbath.”

Mark says that although digital dermatitis in the herd was being controlled by the previous regime, this new set up is helping him and his team to stay on top of it more easily.

“We've also managed to drop the formalin level in the solution to just 2% now and we run the herd through a copper sulphate solution just once a week.” |