

Footbath design decision tree:

Siting:

Can you site it on the parlour exit? Yes- this is superior to other options, even with risk of splash onto open teat ends. Please go to next question.

No - you'll need to consider a footbath prior to the collecting yard, hoof mats or whole herd spray treatment approach. If bathing before the collecting yard is preferred then the bath needs to be wide. Warning - formalin fumes can irritate if inhaled in the parlour. Antibiotics splashed onto the udder is a greater risk, and work out very expensive in a wide, 3m long, 4 inch deep bath. Overall, this is less flexible than a bath on the exit. Hoof mats are reasonably effective but do deliver the same amount of agent to the feet. Hosing and spraying can be labour intensive and create risky aerosols if used in the parlour.

Can you site it so that one side of cows can stand between the parlour and the bath (i.e. 1.8m per cow, so cow flow out the parlour isn't affected)?

Yes – then single file is ok unless the bath is sited a long way from the parlour in which case you may want a double width so you can leave it unsupervised. Once cows are used to a single file bath, they will flow through it easily, especially if it made their normal exit route or if they go through it daily. Only cows with sores on their feet will generally stop before a formalin bath. These are likely to benefit from antibiotic treatment (spray or injectable – consult your vet)

No – then a double width bath may be needed

Have you space for a pre-wash bath?

Yes – these help preserve the life of the agent bath, but you need to keep the agent bath to the recommended strength (4-6% formalin, 5-10% copper sulphate) else you risk spreading infection. Best to have a cow length island between the pre-wash and agent bath.

No – a pre-wash is not essential, and it is one less thing to worry about (especially from the mastitis and spreading DD/foul point of view). You'll have to re-new the chemical agent in the foot bath more regularly. This will cost more in time and chemical agent.

Design for ease and cow flow:

Flat bottomed concrete floor – cows prefer concrete to clattering plastic. No ridges, just a light tamp for grip.

Easy fill – tap with hose, or even a water tank to make it a 30 second job. A pipe to divert the final rinse from the circulation wash to the pre-wash can be useful.

Easy drain – a quick release plug e.g. 4 inch sewage down pipe that slots into a rubber seal works well. Ideally the pipe should be placed out the way of the cow flow so they don't knock it out.

Easy clean – slight slope to drain and a hose. Better than trying to squeegee up a ramp.

Concrete walls set on existing concrete yard 6 inch deep walls to fill with agent to 4 inch line. Vertical walls so cows take a step in, several steps through deep solution then step out.

3m long (at least) – longer if you want more volume (1 litre per cow in herd/group – so a 3m x 10cm x 90cm bath will hold 270 litres and comfortably treat 270 cows.

Herds larger than 270 will want to replenish between groups or run one group at morning milking and one at night. Some herd replenish half way through milking so the last cows through the herd get the active solution. Smaller herds can run cows through the bath more than once.)

Automatic systems are commercially available (Westfalia and De Laval) but are expensive!!!

Bathing agents:

Antibiotics – please speak to your vet

Formalin – 4-6% (4 -6 litres per 100 litres water).

Hazardous and cancer causing, so handle with care.

Most effective for 1st cow through but irritates cows with lesions (the herd may seem to go more lame, before they improve – works best if you've treated the herd with antibiotics prior to starting formalin).

Needs replenishing after 48 hours or if 1 cow per litre of footbath has gone through)

Copper sulphate – 5-10% (5-10 litres per 100 litres water).

Damaging for the land if used in large amounts

Less irritating than formalin but perhaps less potent

Mix up solution the milking before to let it dissolve (ideally in warm water)

Works better if water acidified, perhaps removing the water hardness (e.g dilute peracetic acid or FAM30)

Works well for very large herds (by increasing the concentration to 10% or stronger – but monitor land/slurry copper levels)

Zinc sulphate – 5-10% (5-10 litres per 100 litres water).

Similar to copper

Hypochlorite – 2% (2 litres per 100 litres water).

Cleans feet well

Use in rotation with the above i.e. don't rely on it

Circulation wash

Only use the final rinse (hypochlorite or water wash)

Add hypochlorite to reduce risk of spreading disease

Detergent e.g. fairy liquid

Can help as a wetting agent when added to the above (not antibiotic)

Various commercial products available including:

- Hoofsure endurance (peracetic acid)
- Kilco (acidified copper and zinc)
- Klingon Blue (copper based) – worked as well as daily formalin in Italy
- Intracare hoofit (copper based)
- Podicure (Glutaraldehyde based)

In my experience, this works well

Rotations – copper one week, formalin the next, zinc the next

Use each for 2-3 days each week, consecutive days

Minimises side effects, and you benefit from the strengths of each
2% hypochlorite

Daily formalin with treatments

Start with antibiotic 3-5 consecutive milkings (consult your vet) and 7 day break

Then daily formalin 3-4%

Occasional antibiotic, 10% copper sulphate or rising formalin concentration footbath (4%→8%→10%→8%→6%→4% i.e. increasing each week for 3 weeks then dropping back again, treating any individuals that look uncomfortable)

Final recommendations:

Aim to make footbathing a weekly/daily routine – less stress on cows, less stress on staff and a break will allow infection to re-establish

Foot bath all year round – surveys reveal this helps all year round control

Foot bath dry cows and, if infected, youngstock – once a week may be enough

Look at several designs before installing your own

10 potential benefits of 1 hour per week towards footbathing

1. No more DD treatments (less lameness and secondary disease due to lameness)
2. Fewer chronic cases of digital dermatitis
3. Fewer sole ulcer/ wall ulcers becoming complicated by severe infections
4. No more foul-in-the foot
5. No more persistent interdigital growths
6. No more rotten toes
7. Less heel erosion
8. Harder claw horn – less tenderness on cow tracks
9. Cleaner feet – perhaps cleaner udders, and fewer udder sores due to digital dermatitis
10. Less risk of new digital dermatitis bugs entering the herd