

## WHAT'S IN THAT CATTLE FOOT BATH?

**Author :** Sara Pedersen

**Categories :** [Vets](#)

**Date :** August 13, 2012

**Sara Pedersen** examines a variety of bath agents for cleaning cow's feet and their efficacy in lameness control

**FOOT bathing has become an integral part of lameness management on the majority of farms as it is particularly effective in controlling infectious causes of lameness, including digital dermatitis ([Figure 1](#)).**

However, despite the widespread practice of foot bathing and its importance in lameness control, relatively few studies exist on the effectiveness of various agents that can be added to the bath.

When considering which agent to use, the following need to be taken into account:

- ease of use;
- disposal;
- cost; and most importantly,
- does it work.

It is a common belief that foot bathing agents act as treatments. However, in reality, most are disinfectants and, therefore, have a preventive action – much like teat dipping in mastitis control. So what are the options?

## **Antibiotic foot baths**

Antibiotic foot baths have the highest cure rates, making them very effective at quickly bringing an outbreak under control, but they should not be used merely for preventive purposes. A wide range of antibiotics can be used – for example, Linco-Spectin (Pfizer), Tylan (Elanco) and Erythrocin (Ceva). However, none are licensed for this purpose, therefore statutory withdrawal periods of seven days milk and 28 days meat should be applied.

## **Formalin**

Formalin is a very cheap, highly effective and commonly used agent. However, the fact that the active ingredient, formaldehyde, is a known carcinogen, creates health and safety issues. At a concentration of two per cent or above formalin will act as a disinfectant, and has been shown to have a partial cure rate at five per cent, the most commonly used concentration.

It also has the benefit of hardening the claws and surrounding skin. However, it is very painful on active lesions which, as well as being a welfare issue, can lead to problems when foot bathing as affected cows will be reluctant to enter the bath.

## **Copper sulphate**

Copper sulphate is less an irritant and less dangerous in comparison to formalin, but is more expensive and has potential environmental implications if not disposed of correctly. As with formalin it has a disinfectant effect when used at two per cent, but is more commonly used at five per cent when it has a partial cure effect with regular use (two to three times per week).

In larger herds a 10 per cent solution may be beneficial to ensure the last cow through the foot bath will still be exposed to a strong solution. Acidifying the foot bath with organic acids (see later) can improve the effectiveness of the copper sulphate, so a lower concentration is needed, thus reducing cost and potential environmental effects.

## **Zinc sulphate**

Less commonly used on its own, zinc sulphate either provides an alternative to copper sulphate or can be alternated with it. It is less toxic and irritating than formalin or copper sulphate, but appears to be less effective in practice unless used in high concentrations, at which point cost becomes a barrier. It is a common component of commercial combination products.

## **Organic acids**

The organic acid agents have the benefit of being very safe, and with no known toxic effects on

cows, humans or the environment. However, they have less of a curative action. One per cent peracetic acid is included in this group, along with a number of commercial products.

- **Kovex Foam**

Kovex Foam provides an alternative to the traditional bath system and can be used in collecting yards for prolonged exposure.

- **Hoofsure Endurance**

Hoofsure Endurance is a traditional foot bathing agent, but also contains tea tree oil and wetting agents to help clean feet and also soften any harden slurry to help the active ingredients reach the important site of action.

- **Healthy Hooves**

Healthy Hooves is an organic acid produced specifically for use with copper sulphate, and allows lower concentrations of copper sulphate to be used without compromising its effect.

## **Hypochlorite solutions or parlour washings**

Using parlour washing for regular foot bathing became a popular practice a few years ago. However, there is little published evidence to suggest it has a beneficial effect. A relatively cheap agent that cleans the feet well, hypochlorite can, however, accumulate on the land in the same way as copper sulphate. The strong smell can also deter some cows from entering the foot bath.

Where parlour washings are less concentrated, more hypochlorite can be added, or it can be used in rotation with other known effective agents.

## **Commercial combination products**

Many commercial foot bathing products are available and the majority contain two or more ingredients that act to both clean and disinfect the feet to keep them free of infection.

- **KlingonBlue**

KlingonBlue combines copper sulphate, zinc sulphate, organic acids and a sticking agent to ensure the feet are in contact with the active ingredients long after leaving the foot bath.

- **Intracare Hoof-fit**

This is similar to KlingonBlue, but without the sticking agent.

- **Bootmaker and Deosan Hoofcare Plus**

These both combine gluteraldehyde and quaternary ammonium chloride, which have a synergistic disinfecting action when used in combination.

- **Superhoof Plus**

Superhoof Plus contains organic acids, zinc sulphate and eucalyptus oil. Concentrations of two per cent are recommended for prevention and five per cent for treatment.

While there may be a number of different agents to choose from, it is important to remember they are unlikely to work if they can't get to the target area. The full potential of a foot bath will not be achieved if the cow's feet are dirty on entry ([Figure 2](#)) or do not receive sufficient numbers of dunks in the bath.

Foot bath design, cow flow and foot hygiene on entry to the foot bath are just as important as what is in the foot bath. Selecting which cows to bathe and when is also crucial since dry cows and youngstock are often left out of foot bathing regimes. However, as with mastitis control, it is important to treat all at-risk animals – after all, would you advise only teat-dipping half the herd?

## **References and further reading**

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