WHICH IS MOST EFFECTIVE - BOOT BATHS OR BOOT MATS?

Boot Disinfection

Boot disinfection is required on farms as part of their essential biosecurity measures. It is a valuable tool to prevent diseases spreading through cross contamination between livestock areas.

Boot baths and boot mats are frequently used on farms. A boot bath holds a volume of disinfectant solution, allowing the boot to be fully submerged up to the ankle. The user is encouraged to remove organic debris by agitating the boot whilst submerged to remove the soiling.

A boot mat holds the disinfectant in a foam pad, set in a tray. The user is asked to walk slowly through the mat, and the disinfectant coats the sole and sides of the boot depending on the depth of the foam and removes any soiling.

The Study

A field study was conducted by the Microbiology Laboratory at Evans Vanodine to assess the reduction of bacterial load on wellington boots when using boot baths compared to boot mats. Staphylococcus aureus was used as the challenge organism as it is one of the obligatory organisms used in the EN test methods for veterinary areas.

Evans' FAM 30®, an iodophor biosecurity and surface disinfectant, was used at the recommended dilution rate of 1:100, whilst water was used as a control comparison. A contact time of 30 seconds was chosen in this study as this reflects actual use, as workers need a quick but effective way of disinfecting boots.

The bacterial solution was applied to the sole of the wellington boots and then one pair of boots was submerged in a boot bath with the FAM 30 solution and another pair with water as the control. Both were submerged for the contact time and the boots were agitated in the solutions.

Taking another two pairs of boots, which had also been treated with the bacteria, the user then walked through the FAM 30 soaked boot mat for the contact time, ensuring full contact with the disinfectant solution and again using the second pair of boots, a water control was carried out at the same time. Immediately after treatment, swabs were taken from the soles of all the boots for testing.

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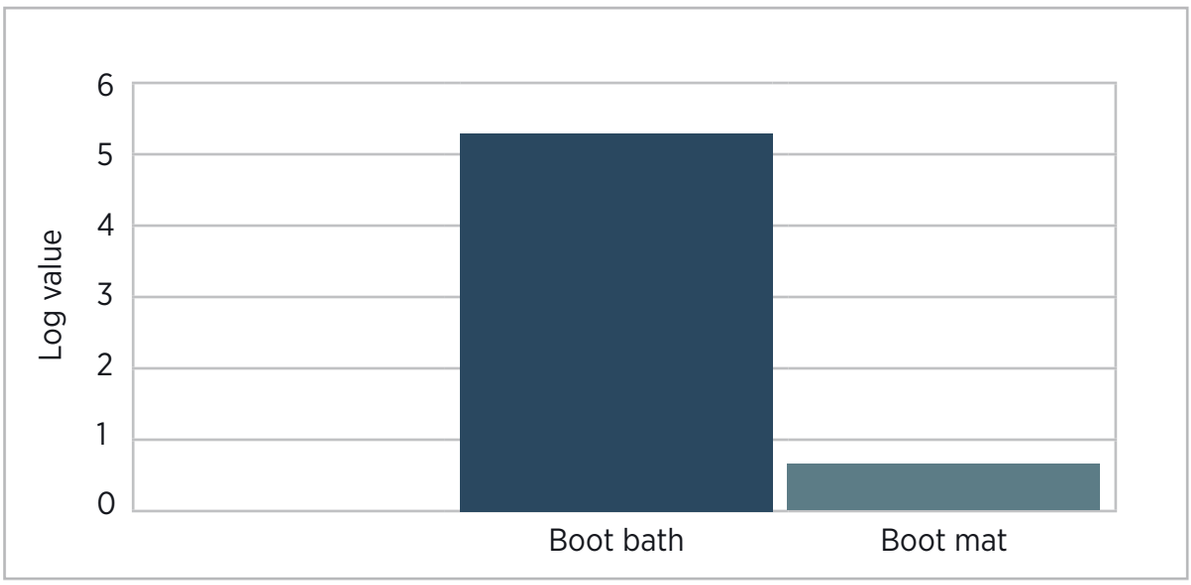
The Results

Once the test was complete, the reduction in the numbers of bacteria were evaluated for both the boot bath and the boot mat compared to using just water. Results showed that the boot bath was significantly more effective in reducing the numbers of bacteria present on the boot sole with a **>5.26** (>99.999%) log reduction from the water control, while the boot mat had little impact compared to the water control with just a **0.6** log (<90%) reduction from the water control (see figure 1).

Figure 1 - Boot bath and boot mat reduction compared to water control



In comparison, the European surface test method for bacteria asks for a 4 or 5 log reduction as a pass criterion which is a 99.99% or 99.999% reduction in organisms compared to using just water.

Both methods were tested for a 30 second contact however, the ability to fully submerge the boot in the foot bath and agitate the boot in the solution gave a much more effective result. This agitation along with the use of a suitable, effective disinfectant, is the key to reducing bacterial load and therefore reducing the risk of cross contamination.

The Conclusion

In summary, this study shows that boot mats are less effective at removing bacterial load from boots even when an effective disinfectant is used at the recommended dilution rate. Farms who wish to implement an efficient biosecurity programme should consider installing boot baths rather than mats at entry and strategic points around the farm to prevent the spread of disease through cross contamination.