

Introduction

Digital dermatitis (DD) has a high impact on animal welfare and causes appreciable economic losses (Brunijnis et al., 2010). Attempts have been undertaken to control the disease by applying biocidal products for veterinary hygiene control which is legally possible according to EU Biocides Directives. The use for therapeutic purposes, however, is strictly prohibited.

The objective of this study was, in comparison to the so called gold standard formalin (Teixeira et al., 2010), to test the efficacy of a commercial foot bath using a registered biocidal product (4Hooves, DeLaval) to prevent relapses of digital dermatitis after hoof trimming and topical treatment.

Material

In a farm with 1550 cows about 270 with comparable milk yield, recently inseminated, were selected. Prior to the start of the study a 5% formalin solution was used twice weekly. About 90 animals were randomly allocated to each of three groups. After trimming and topical treatment (salicylic acid containing paste, bandage for 5 days) of all visible DD lesions the trial started five days later (see Table 1). To improve hoof disinfection by the biocidal product in the foot bath, Group 1 and 2 included a pre-cleaning foot bath (containing HC40, DeLaval). Control group 3 was pre-cleaned with water for the first part of the study, then foot bathing was stopped completely in this group.

Method

The evaluations were done 3 times during the trial in a trimming chute and once in the milking parlor (rotary). Lesions were scored due to severity and size according to a modified scoring system (Doepfer, 2009).

The focus of this study was on the significance or rather the non-significance (null hypothesis) of a group-effect on the response variable "Score", calculated according to the stages of dermatitis digitalis lesions. The Linear Mixed Model was applied for each phase to account for individual effects. Significance-level was set to p-value < 0.05.

References

Brunijnis et al., 2010. J Dairy Sci. 93 (Issue 6): 2419-2432; Doepfer 2009. Pages 1–5 in CanWest Veterinary Conference, Banff, AB, Canada; Teixeira et al., 2010. J. Dairy Sci. 93: 3628-3634.



On day -5, the overall prevalence of DD stages M1-M4 was 66.1% and the prevalence of acute lesions (M2) was low (10-20%). Evaluation of acute DD lesions in the milking parlor five days after topical treatment (day 0, see table 1) revealed that topical treatment was successful, none of the treated lesions were in an acute state.

During the first part of the study the prevalence of acute DD remained less than 15% in all groups. There was no statistically significant difference between formalin and the biocidal product. In the second part of the study the control group 3 – now without foot bath – showed an increasing prevalence of acute DD (Figure 1).

group (90 cows each)	before period 1	period 1 (day 0 to day 65)	period 2 (day 66 to day 130)
group 1	hoof trimming (day -5)	2 days a week: pre-cleaning (HC40) + foot bathing (4Hooves, 1%)	
group 2	evaluation of all DD stages	5 days a week: pre-cleaning (HC40) + foot bathing (4Hooves, 1%)	
group 3 (control)	medical treatment of acute DD lesions (day -5 to day 0)	2 days a week: pre-cleaning (water) + foot bathing (formalin, 4%)	no pre-cleaning no foot bathing

Table 1: Study Design: Usage of Footbaths during Trial

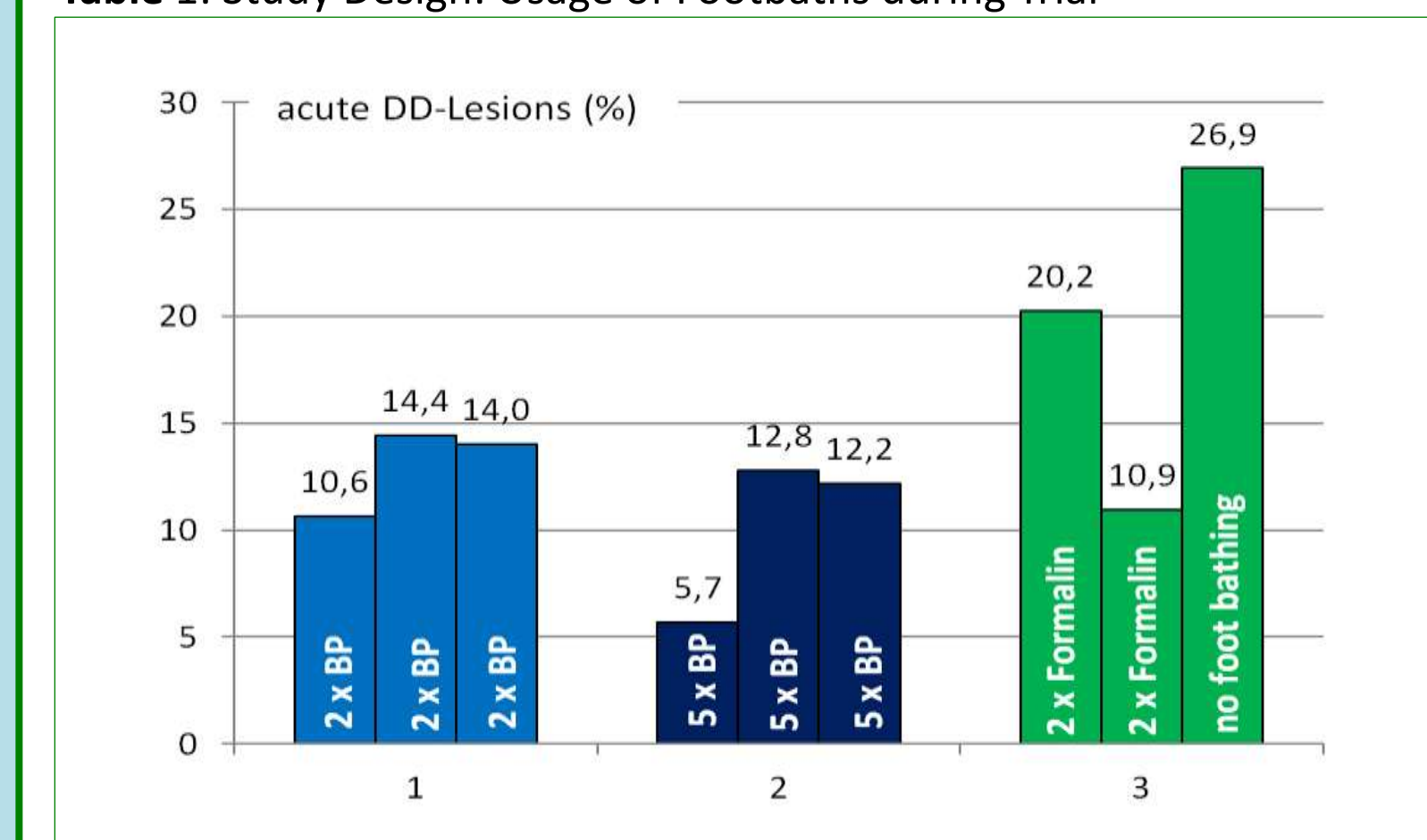


Figure 1.

Acute DD-lesions in groups 1, 2 and 3 on day -5, after first part of study (day 65) and after second part of study (day 130); 2xBP: biocidal product 2x weekly, 5xBP: biocidal product 5x weekly

Discussion

Hoof trimming and topical treatment as well as good housing and feeding conditions are of fundamental relevance to control infectious hoof diseases. In addition biocidal products in hoof baths should decrease the count of bacteria at the hooves to control claw health, in particular the prevalence of digital dermatitis. The focus of this study was on group-effects on digital dermatitis. A statistically significant difference between the groups could not be proved. In the present study the biocidal foot bath product combined with a pre-cleaner showed its efficacy in controlling the prevalence of acute digital dermatitis over 130 days, compared to formalin.

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