

Effect of Rubber Flooring on the Development of Claw Lesions in Lactating Dairy Cows Housed in Free Stall Barns

J. Vanegas, DVM¹; M.W. Overton, DVM, MPVM¹; W.M. Sischo, DVM, MPVM, PhD¹; S.L. Berry, DVM, MPVM²

¹ *Veterinary Medicine Teaching and Research Center, Tulare, CA*

² *Department of Animal Science, University of California Davis, Davis, CA*

Introduction

With the increased numbers of confinement dairy production systems, lameness has become a major economic cost to the dairy industry. Housing factors, specifically related to concrete flooring in free stall barns, have been associated with an increased risk of claw lesions and clinical lameness. Research has suggested that alternative flooring surfaces may prevent or decrease the occurrence of lameness and claw lesions. The objective of this study was to determine the effect of rubber flooring on the occurrence of claw lesions, clinical lameness and hoof growth and wear.

Material and Methods

A total 177 mature (>1 parity) lactating Holstein dairy cows between 10 to 30 days in lactation were randomly allocated into one of two study groups. Both groups were housed in identical free stall facilities except that the TREATMENT group had interlocking rubber alley mats covering the entire alley surfaces of the barn. The walking surfaces of the CONTROL group had the existing grooved concrete with no rubber flooring. At the time of enrollment the rear claws of all cows were trimmed based on the Dutch five-step method described by Shearer and Van Amstel 2001, evaluated for the presence or absence of claw lesions, signs of clinical lameness based on a locomotion score that used posture and gait as the assessment criteria (1=normal, 2=middle lame, 3=moderately lame, 4=lame and 5=severely lame) (Sprecher *et al*, 1997) and body condition scored (five-point scale, .25 increments where 1=thin, 5=fat)

(Ferguson *et al*, 1994). Additionally, the lateral claw of the right foot was marked on the dorsal wall 3 cm below the coronary band to measure the inter-observational change in growth and wear. All cows were evaluated two more times during their lactation; at 84 ± 10 and 120 ± 10 days in lactation.

Results and Significance

In total, 177 cows were enrolled into the study and evaluated three times. The groups were similar in parity and enrollment BCS. Preliminary analysis using the cow as the unit of interest, the severity of the claw lesions was estimated by adding the total number of lesions observed in both feet. During the first examination, 92.7% and 91.5% of the cows had lesions on the claw in the TREATMENT and CONTROL group, respectively. The severity ranged from two to 11 lesions per cow. Regardless of the study group, sole hemorrhages and heel erosions were the most prevalent claw lesions, accounting for 48 and 45% of the total severity scores, respectively. On the second examination, 97 and 98% of the cows had lesions on the claw for the TREATMENT and CONTROL, respectively. No differences were observed on the distribution of the claw lesions among study groups. Similar observation was found during the third examination, with 95 and 100% of the cows having claw lesions for the TREATMENT and CONTROL groups, respectively. Further analysis will evaluate the number of lesions observed for each claw, foot, and animal stratified by experimental group. Final results will be presented at the September 2005 conference.