

Sole Lesions and Lameness in Dairy Cattle

Erin Bell¹, Frances Flower² & Daniel Weary

Animal Welfare Program, University of British Columbia, 2357 Main Mall, Vancouver, BC, V6T 1Z4, Email: 1ebell27@hotmail.com, 2frances_flower@hotmail.com

■ Abstract

Lameness is costly to production and compromises the welfare of dairy cows. One of the major causes of lameness is sole lesions on the hoof. We recorded the number, severity, and location of lesions in the claws of 624 primiparous and multiparous Holstein cows from 20 herds during hoof trimming. Lesions were found in cows from all herds. The mean herd prevalence of cows with at least one lesion was 85.7% (with individual herds ranging from 53.7 to 100.0%). The mean herd prevalence of cows with at least one severe lesion (severe haemorrhage or ulcer) was 34.9% (range 7.3 – 74.1%). Within the cow, we found differences in the number of lesions observed on different claws. Overall, the outer claws on the hind feet contained 54.9% of the lesions followed by the inner claws on the front feet (17.7%), the inner claws on the hind feet (16.4%) and the outer claws on the front feet (10.9%). We found a very similar pattern when considering only the most severe lesions. Primiparous cows were at greater risk for laminitis at the beginning of their lactation while multiparous cows were more likely to have visible lesions in mid-lactation. Overall, cows with higher body condition scores were less likely to have lesions present than those with lower scores. Cows were more likely to have lesions on farms with longer waiting times during milking, higher steps or stall curbs, computer grain feeders, automatic alley scrapers and flooring imperfections.

A second problem is the difficulty associated with identifying cows in the early stages of lameness. We determined how successful existing and novel lameness assessment methods were in predicting the presence and severity of sole lesions. Lameness was assessed from video records of 46 cows over 7 consecutive days using computerized analysis of cow movements, a 9-pt subjective score and measures of free-stall use. All three lameness assessment methods were able to predict the presence of lesions.

■ Implications

Sole lesions affect the majority of dairy cows in the Fraser Valley. The risk of lesions is related to stage of lactation, individual cow factors and farm characteristics. Improved methods of lameness assessment can predict the presence of sole lesions. In new research we are using these measures to design environments that minimize lameness in dairy cattle.