Correlation of Different Visual Scores and the Presence or Absence of Painful Foot Lesions

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Introduction

Most lame cows in dairy farms are detected by visual locomotion scoring (VLS) by farmers and farm personnel. However, it is unknown how accurately foot lesions can be detected by VLS. The objectives of this study were to evaluate the level of agreement between visual locomotion scores and presence or absence of painful foot lesions and to determine the frequency distribution of the encountered diseases related to lameness.

Materials and Methods

Data was collected from a 2,800-cow dairy farm located near Ithaca, NY, from October 15, 2005 to February 15, 2006. A total of 1,100 lactating cows from three pens were locomotion scored using a five-point scoring system. Scores were always done by the same veterinarian with score scale being 1=normal, 2=slightly lame, 3=moderately lame, 4=severely lame and 5=extremely lame. A VLS of 3 or greater was considered lame. Cows that were scheduled for regular hoof trimming and cows that were lame on VLS had all four feet trimmed by a veterinarian trained in hoof trimming. Presence of a painful lesion (PL) defined as white line abscess, sole ulcer, digital dermatitis, foot rot and other lesions causing a reaction in the cow when pressure was applied were recorded. Cochran-Armitage trend test was used to determine the association between VLS and presence or absence of PL determined by hoof trimming. Digit diseases observed at hoof trimming were recorded by type. Overgrowth and imbalance of the hooves were not considered diseased even though they may cause lameness, because a cut-off for the minimal severity could not be objectively assessed.

Results

A total of 886 hoof trimmings from 566 animals were accumulated by the end of the data collection period. Only the first treatment of each cow was used for the analyses. PL on at least one foot at hoof trimming was discovered in 5.6% of VLS=1, 21.4% of VLS=2, 54.9% of VLS=3, 79.3% VLS=4 and 100% of VLS=5 cows. Cochran-Armitage trend test had P value of < 0.0001. Frequency of digit disease was 54.7% in trimmed cows. Sole ulcer was the most common digit disease, accounting for 48.1% of all digit disease. In descending order, the remaining observed digit diseases were digital dermatitis 21.6%, white line abscess 17.4%, toe ulcer 2.9%, heel ulcer 2.6%, double sole 2.3%, other diseases 1.9%, foot rot 1.0%, white line disease 1.0%, heel crack 0.7% and curled toe 0.7%.

Significance

A very strong association was found between the proportion of cows with painful lesions and VLS. Therefore, VLS is an accurate method to detect cows with foot lesions.