

# Retrospective evaluation of the causes and distribution of lameness in beef and dairy cattle evaluated by ambulatory and in-house clinical services at a North American veterinary teaching hospital

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## Introduction

Since lameness occurs so commonly and has such significant effects on cattle productivity and farm profitability, management and prevention of lameness is essential to the design of effective health and husbandry programs. Unfortunately, the causes and distribution of lameness lesions between beef and dairy cattle, as well as the different management groups within a specific production class, can differ dramatically. A recent report analyzing data from 17 dairies found infectious conditions, specifically digital dermatitis and foot rot, were the most common cause of lameness in first-lactation cattle. In contrast, non-infectious lesions, namely white line disease and sole and toe ulcers, were the most common cause of lameness in cows in their second or greater lactation. A report evaluating the incidence of specific causes of lameness in cattle on 6 commercial beef feedlots found that the most frequently identified causes of lameness were upper limb issues and deep digital sepsis. However, when characterizing different causes of lameness in beef cattle outside of feedlots, there exists a dearth of published data. Therefore, the objective of this study was to describe the different causes and distribution of lameness in beef and dairy cattle presenting to either a primary care ambulatory service or in house referral services at a veterinary teaching hospital in the southeastern United States.

## Materials and methods

This retrospective clinical case study was conducted by reviewing hospital admissions of beef and dairy cattle seen by in-house or ambulatory clinicians at a veterinary teaching hospital from 2001-2021. In order to ensure identification of all relevant cases, the complete list of final lameness diagnoses, as listed in the records software, included in the search comprised: lameness, sole ulcer, laminitis, interdigital fibroma, corn, caudal heel pain, fracture, septic arthritis, arthritis, screw claw, tenosynovitis, foot rot, interdigital necrobacillosis, contagious foot rot, cranial cruciate, stifle injury, nerve injury, nerve damage, luxation, white line disease, sole abscess, toe abscess, quarter crack, toe crack, elso heel, spinal, spinal cord and hoof overgrowth. Final diagnosis was recorded and, when available, the affected limb, whether a lesion was localized to the digit or

not, and affected claw were also recorded. Data were stratified by location of initial evaluation (ambulatory vs. in hospital), period of presentation, production class, age, sex and whether the final diagnosis was infectious or non-infectious. For statistical comparisons, a student's t-test was used to compare continuous data between groups, while a chi-square test was used to compare categorical data between groups.

## Results

Two-thousand two hundred and twenty animals met criteria for inclusion in the study. One thousand seven hundred and fifty-three animals (78.4%) were seen in an in-house setting, while 484 (21.6%) animals were seen in an ambulatory setting. Across both settings (in-house and ambulatory), more than 40 breeds were represented with 89.2% classified as beef breeds and 10.8% classified as dairy breeds. The most common diagnoses were sole ulceration (13%), hoof overgrowth (12.1%), hoof trim (9.9%), interdigital fibroma (7.8%), unspecified lameness (5%), corkscrew claw (4.8%), hoof cracks (4%), septic arthritis (3.9%) and digital dermatitis (3.5%). All other diagnoses occurred at a prevalence of < 3%. Of the diagnoses encountered, 82.9% had a non-infectious etiology. Clinical problems were localized to a hindlimb significantly more often than forelimb ( $P < 0.001$ ). However, beef cattle were significantly more likely to have lesions in a forelimb than dairy breeds ( $P < 0.001$ ). Diagnoses were attributed to problems with the digit in 82.2% of all cases. In beef breeds, localization to the digit occurred in 82.7% of cases, while localization to the digit occurred in 77.9% of dairy breeds. In cases with a localization to the digit, the lateral claw was affected 82.7% of the time.

## Significance

Lameness is an important concern from both a humane and economic standpoint. The results of this study will help with the diagnosis, treatment and prevention of lameness in beef and dairy cattle of different ages and production classes.

