

Evaluation of 14 Western Dairy Herds Using FirstStep™: A Novel Tool to Troubleshoot and Prevent Lameness in Dairy Herds

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Introduction

There is increasing need to address lameness in the dairy industry. Lameness is one of the most costly diseases in the dairy industry and continues to gain attention among consumers. Diagnosing the predominant causes of lameness requires a systematic approach to identify the important risk factors present within each dairy. FirstStep™ is a software program designed to assess key areas of a dairy known to impact lameness and provide reports that identify areas of weakness in the lameness management program. The objective of this study was to use FirstStep™ to evaluate 14 dairies in the western US.

Materials and Methods

The study was conducted from September 2007 through October 2008. The dairies were located in seven western states and were comprised of freestall (5), dirt lot (5), freestall with dirt lot access (2), cross-ventilated (1), and pasture-freestall combination (1). Twelve dairies were Holstein herds, and two were Jersey herds. Locomotion and hygiene scores were collected on the same two pens (mean days-in-milk (DIM) = 100 to 200 d) during each of five visits. On the initial visit, data were collected to assess freestalls, transition management, time budgets, footbaths, walking surfaces, dirt lots, heat abatement, holding areas, hoof-trimming, and claw lesions (data from eight dairies).

Results

On average across all dairies and time periods, 18% (range of 11 to 26%) of cows scored were considered lame (> 2 using the 1 to 5 locomotion scoring system). Average percent of leg hygiene score 3 and 4 (using 1 to 4 scoring system) was 38% with a range of 4% to 72%. Freestall platform length, neck rail positioning, and bedding use

were identified as key areas for improving cow comfort. Nearly 80% of dairies were providing 30 in (76.2 cm) of bunk space to transition cows and were housing first lactation cows separately from mature cows; however, only 40% of freestall herds provided first lactation cows access to freestalls before calving. Nearly all footbaths were > 4 in (> 10 cm) deep; however, only two of 14 met the recommended length (96 in [244 cm]) to achieve two immersions for each rear foot. Frequency of footbath change averaged 400 cow passes but ranged from 200 to 675 cows. Stall standing time was the most detrimental to lying time in freestall herds while milking time and time held away from pens (excluding milking) reduced lying times in dirt lot dairies. Concussion and slipping were the two most prevalent risk factors associated with walking surfaces on all dairies. All dirt lots assessed had adequate ft² (m²) per cow; however, 25% lacked proper orientation to aid in keeping the bedding dry beneath the shade structure. Nearly 70% of herds assessed could have benefited from additional water availability to achieve 3.5 linear inches (8.9 cm) of trough perimeter per cow to aid in heat abatement. Parlor holding areas were inadequately sized at < 15 ft² (1.39 m²) per cow increasing the likelihood of cows slipping. The most common areas for improving hoof trimming technique were removal of axial and abaxial wall horn and trimming the claws flat (versus concave). A need for standardizing claw lesion records was noted and was presented to the participants of the study.

Significance

FirstStep™ provided a unique, methodical approach to investigating lameness on dairies. The program successfully identified lameness trigger factors within each participating dairy and provided recommendations for reducing lameness within the herds under study.