

Lameness in Dairy Cattle: A Practical Overview

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Key Takeaways

1. Lameness is a sign of underlying pain or injury, not a disease itself.
2. Many lame cows show subtle changes before obvious limping, making early detection challenging.
3. Lameness is common in dairy herds and is often underdetected.
4. Lameness reduces milk production, reproductive performance, and herd longevity.
5. Early recognition and prevention are key to improving cow welfare and farm performance.

This fact sheet provides an overview of lameness in dairy cattle, including what it is, why it matters, and how to recognize and manage it. Information is geared toward producers, consultants, and educators.

What Is Lameness?

Lameness is not a disease, but a visible sign that a cow is experiencing pain or difficulty walking, often due to problems in the hoof, limb, or musculoskeletal system (Cramer et al., 2024b).

Importantly, lameness is not limited to cows that are obviously limping. Many lame cows show subtle changes in gait that are easily missed during daily routines. As a result, relying solely on visible limping often identifies only more advanced cases and may underestimate the true prevalence of lameness within a herd (Leach et al., 2010). This means that many lame cows may go unnoticed without careful observation.

Why Lameness Matters

Lameness has important implications for production, sustainability, and animal welfare in dairy systems.

Production and Performance

Lame cows produce less milk, with reported losses ranging from 1,784 to 2,838 pounds per lactation compared with non-lame cows (Puerto et al., 2021). Lameness is also associated with impaired reproductive performance, including calving intervals that are approximately 34 days longer, as well as an increased risk of culling (Ózsvári, 2017; Puerto et al., 2021). Increased culling of lame cows can reduce productive lifespan within the herd and increase replacement costs for producers.

Together, these effects demonstrate the broad impact of lameness on productivity, reproduction, and herd longevity.

Efficiency and Sustainability

Lameness reduces production efficiency, which can increase greenhouse gas emissions per unit of milk produced. One analysis estimated an additional 13.6 kg of CO₂-equivalents per ton of fat- and protein-corrected milk for cows with hoof lesions compared to those without (Mostert et al., 2018). These increases are driven by factors such as feed production, enteric methane emissions, and manure management associated with raising replacement heifers. Reducing lameness can decrease the number of replacement heifers needed, making this particularly important as the U.S. dairy industry works toward its goal of greenhouse gas neutrality by 2050 (Undeniably Dairy, 2026).

Together, these inefficiencies illustrate how lameness influences production efficiency and environmental sustainability.

Animal Welfare

Lameness is a major animal welfare concern and is recognized as an important indicator of the ethical care and management of food-producing animals. (Fraser, 2008). Lame cows experience pain, as demonstrated by reduced nociceptive thresholds (Whay et al., 1998), and show changes in normal behaviors such as feeding and lying time (Magrin et al., 2023).

These effects demonstrate the impact of lameness on cow comfort and overall well-being.

How Common Is Lameness?



Lameness is a widespread issue in North American dairy herds, with published estimates suggesting that approximately 10% to 55% of cows may be affected at any given time (Adams et al., 2017; Cook et al., 2016; Von Keyserlingk et al., 2012). This wide range reflects differences in production systems; summaries of the literature report prevalence estimates as low as approximately 8%–10% in pasture-based systems and as high as 55% in indoor-housed herds (Cramer et al., 2024a).

Lameness risk is influenced by housing (e.g., bedding, flooring, and stall design), management (e.g., cleanliness, hoof trimming, and stocking density), and individual cow characteristics such as body condition, parity, and hock injuries (Roche et al., 2024).

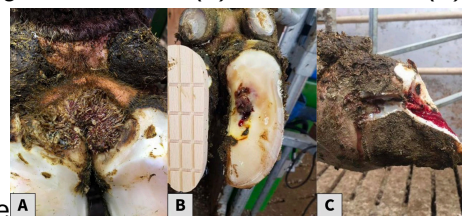
Together, these factors highlight that lameness is both common and influenced by multiple interacting components of the production system.

Causes of Lameness

Lameness in dairy cattle can arise from a range of conditions, including hoof lesions, trauma, arthritis, muscle or tendon injuries, and neurologic disease (Cramer et al., 2024b). Although most lame cows have underlying hoof lesions, not all cows with lesions are visibly lame, particularly when lesions are mild or in early stages (van Huyssteen et al., 2020). In North American dairy herds, the most common hoof lesions associated with lameness are digital dermatitis (Figure 1A), sole ulcers (Figure 1B), and white line disease (Figure 1C) (Cramer et al., 2008; DeFrain et al., 2013; Solano et al., 2016).

Figure 1. Representative Examples of Common Hoof Lesions in Dairy Cattle:

(A) Active Digital Dermatitis, (B) Sole Ulcer, and (C) White



Line Disease

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For a more practical, producer-focused overview of these hoof lesions, see the USU Extension fact sheet “[Three Common Hoof Problems in Dairy Cows: What to Watch for and How to Prevent Them.](#)”

For a more technical overview of these hoof lesions, see USU Extension’s “[Digital Dermatitis, Sole Ulcers, and White Line Disease in Dairy Cattle: Pathogenesis, Diagnosis, and Treatment.](#)”

Summary

Lameness is not a disease itself, but a visible sign of underlying pain or dysfunction that can have substantial consequences for dairy cattle welfare, productivity, and longevity. Many cases are subtle and easily missed, contributing to the underestimation of its true prevalence on farms. Recognizing the importance of lameness and the factors that influence its occurrence is an essential first step toward improving hoof health management.

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Authors

*Drew Swartz, Kalen Taylor, Jacob Hadfield, and Justin
Clawson*