Treatment Options for Lameness Disorders in Organic Dairies

Pablo Pinedo, DVM, PhD[a], Juan Velez, MS, DVM[b,*], Diego Manriquez, DVM[a], Hans Bothe, DVM[b]

KEYWORDS

• Lameness • Dairy • Organic

KEY POINTS

- Due to limitations in the use of therapeutic resources, preventive management and early detection of lameness is critical in organic dairies.
- Organic regulation includes a strict rule of not withholding treatment with a prohibited substance to maintain organic status if it causes the animal to suffer.
- Prompt decision to cull or euthanize is an important component of treatment evaluation.
- Comprehensive lameness evaluation should include periodic locomotion scoring, adequate record keeping, and consideration of percentage of cull cows due to locomotion problems.

BACKGROUND

Animal welfare is an important aspect of both organic and conventional dairying. Because the dairy industry has a moral and ethical obligation to provide for animal well-being,[1] proper control of locomotion disorders is a fundamental area of health management in organic farming.

Certified organic dairy systems require that cows graze for at least 120 days during the growing season (National Organic Program regulations) and that they consume at least 30% of their dry matter intake demand from grazing. In many cases this is complemented with some type of housing that also requires outdoor access during the whole year. This management combination results in unique features determining the cows' feet and legs health condition because the mixture of walking surfaces and displacement efforts requires a continuous adaptation of the hoof, ligaments, muscles, and bones to different flooring, humidity, and waste levels on the floors.[2]

Disclosure Statement: The authors have nothing to disclose.
[a] Department of Animal Sciences, Colorado State University, 305 West Pitkin Street, Fort Collins, CO 80523-1171, USA; [b] Aurora Organic Farms, 7388 CO-66, Platteville, CO 80651, USA
* Corresponding author.
E-mail address: jvelez@aodmilk.com

Vet Clin Food Anim 33 (2017) 377–387
http://dx.doi.org/10.1016/j.cvfa.2017.03.003
vetfood.theclinics.com

As previously stated, an adequate health status of the feet and legs is a priority for organic dairies and, as a consequence, preventative strategies, adequate diagnostic protocols, and effective lameness treatment constitute key components of in-farm health maintenance programs.

Most disorders resulting in lameness originate in the feet.[3] In general terms, depending on causality, claw lesions can be categorized as infectious and noninfectious. Due to regulations that include strict prohibition against the use of antimicrobials and other synthetic substances in organic systems, infectious lesions constitute the largest challenge for this system, although in many cases traumatic injury will also result in bacterial infection. Main infectious entities include digital dermatitis (DD; commonly known as hairy heels warts), heel erosion, interdigital dermatitis, toe abscess, and foot rot.[4–6] Noninfectious lesions are associated with loss of tissue integrity due to traumatic events, excessive wear, nutritional deficiencies, or overtrimming that may be the primary entry for infections. Among noninfectious lesions are laminitis; white line disease (WLD); sole, toe, and heel ulcers (**Fig. 1**); sole bruising (sole hemorrhage); corkscrew claw; hardship groove (horizontal fissure); vertical fissure; interdigital hyperplasia; and thin sole.[4,5,7] Other noninfectious lesions can be observed in the hock and knees and are mainly related to traumatic events.

In addition to the need for pointing out treatment options for organic dairies due to specific therapy restrictions, it is important to compare the risk factors, epidemiology, and the magnitude of the locomotion problems between organic and conventional farms to evaluate whether some current approaches for lameness control are exchangeable between these systems or whether they are exclusively functional for a specific operation.

LAMENESS EPIDEMIOLOGY IN ORGANIC DAIRY FARMS

Organic farms in the United States often have characteristics that differ from conventional dairy farms. These include a smaller herd size, use of non-freestall housing, and grazing-based diets,[8,9] which are management factors that have been associated with different levels of various diseases. Therefore, a confounding effect of organic management on disease incidence may be expected[10] and these features may also affect traits, such as the level of fat reserves in the cow, which are related to proper feet and leg health. In a study comparing indicators of animal welfare in organic and conventional dairies, locomotion and body condition scores (BCSs) were analyzed using a database containing 42 dairy farms, 6 of which were organic dairies.[1] BCS was similar in both systems and was significantly associated with locomotion score, percentage

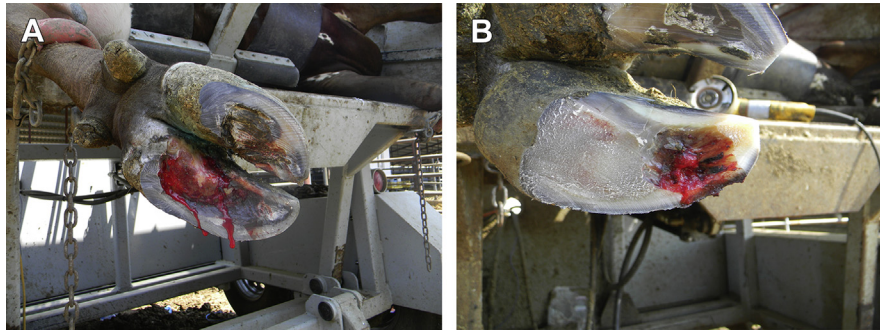

Fig. 1. Two cases of noninfectious disorders. (*A*) Sole ulcer exposing necrotic underlying tissue. (*B*) Toe ulcer as seen after removal of loose horn.