

Risk (Predisposing) Factors for Non-Infectious Claw Disorders in Dairy Cows Under Varying Zero-Grazing Systems

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Abstract

Lameness in cattle is one of the major causes of economic losses in dairy production systems (Hernandez et al., 2005; Kossaibati & Esslemont, 1997). These losses occur through various negative impact directly on cattle and indirectly on the dairy production system. These include reduced milk yield (Hernandez et al., 2005), discarding of milk due to withdrawal period of drugs used to treat some of the lameness conditions, cost of veterinary drugs and professional services in managing the conditions (Enting et al., 1997), lowered conception rate and increased calving interval (Melendez et al., 2003; Sogstad et al., 2006), reduced ovarian activity during early postpartum period (Garbarino et al., 2004), as well as premature culling and occasional mortalities (Enting et al., 1997). Lameness has also been identified as a major welfare determinant in cattle because of discomfort and pain that it causes (Offer et al., 2000). Claw lesions account for between 60% and 90% of all lameness incidences in cattle in various countries of the world (Bergsten et al., 1994; Manske et al., 2002; Weaver, 2000). More than 60% of lameness in cattle is caused by lesions and disorders affecting the horn of the claw such as sole ulcers, heel erosion, sole bruising, white line separation and underrun (double) soles. All these claw disorders and lesions have a direct or indirect effect on the dermis (corium) of the claw and are associated with laminitis (Belge & Bakir, 2005; Manske et al., 2002; Nocek, 1997). They are common in cattle raised under intense systems and feedlots (Smilie et al., 1991). Claw horn disorders in cattle are discernible at clinical level by lameness symptoms or at subclinical level by hoof trimming to reveal non-painful lesions within or under the horn (Clarkson et al., 1996; Nocek, 1997). However, adoption of confined housing in dairy cattle husbandry as is the practice in smallholder dairy production systems particularly in developing countries has led to higher incidences of claw disorders. This is mainly due to cattle spending long hours standing on confined hard floors that exposes claws to higher pressures which predispose them to circumscribed excessive local loading, thus stimulating more horn production and enlarging of the claws.