

WHAT IS IT

An infectious and contagious bacterial infection of the skin, commonly seen in the interdigital cleft of the foot.

HOW TO RECOGNIZE IT

Digital dermatitis presents in a variety of stages ranging from painful, bright red ulcerated, or a less painful, grey/black, circular, granulomatous skin lesion. Edges can have a white margin and/or “hairs” protruding from them. Lesions are clearly demarcated and are typically located in the interdigital cleft, but can occur on other locations such as the interdigital space or at the front of the foot. Severe lesions can become proliferative with filamentous projections or hyperkeratotic. It is useful to classify lesions into “active” (painful and ulcerative lesions > 2 cm) and “chronic” (grey/black hyperkeratotic lesions without painful ulcerative lesions >2 cm)

PATHOGENESIS

Mechanical irritation of the skin and maceration by water and chemicals from manure weakens the skin barrier. A synergistic group of bacteria including *Treponema* spp then invade and infect the weakened skin barrier, leading to acute inflammation of the dermis and epidermis. These bacteria are common in the environment and normally live in the rumen. There do appear to be some more virulent strains on some farms as not all farms are infected with DD. *Treponema* species are a necessary component of the group of bacteria to create disease. *Treponema* species are gram-negative spirochaetes that are microaerophilic and can encyst to protect itself. As the bacteria invade the epidermis and damage the different layers, the body responds with a local inflammatory process that can result in the hyperkeratosis and proliferative lesions.

HOW TO PREVENT IT

The main focus of prevention is hygiene. Providing a clean environment without wet and or abrasive walking surfaces decreases the chances of weakening the skin barrier. Footbaths are a preventative measure that should be used at whatever frequency is necessary to minimize the occurrence of active painful lesions. Footbaths need to be at least 10 feet (3m long) and are typically filled with disinfection solutions such as copper sulfate or formalin. Other preventative measures include preventing infected animals from entering the herd and ensuring replacement animals are managed to prevent new infections.

HOW TO TREAT IT

Currently, no licensed products exist to treat DD. Treatment typically consists of applying topical tetracycline based antibiotics to active lesions using a wrap or a paste. Wraps are not necessary but if they are used they should be removed within 24 hours. Non-antibiotic compounds typically containing heavy metals such as copper are also often used in the field. The role of topical treatment is to treat active lesions and hasten its transition to a chronic lesion. Once the lesion is chronic it is the role of the footbath to prevent recurrence.