Digital dermatitis (DD) is an infectious lesion of the bovine hoof, usually found on the heel bulb around the end of the interdigital cleft. Rarely, DD may be found in the interdigital space, associated or not with interdigital hyperplasia and, less frequently, on the skin above the coronary band or close to the dewclaws. More than 90% of DD lesions are found on the rear hooves. Abraded skin constantly exposed to a wet, manure contaminated walking surface provides ideal conditions for infection.

Spiral-shaped bacteria (spirochetes) of the *Treponeme* family are thought to be the primary pathogen in advanced stages of infection; other organisms may be involved in earlier stages. Whether or not DD and interdigital dermatitis are caused by the same organism(s) is controversial. There have been several reports of DD-like infections in ‘non-healing’ cases of white line lesions and sole ulcers.

**Prevention**

Strategies for the prevention of DD include eliminating its introduction by new animals entering the herd, maintaining clean, dry flooring and routine hoof bathing.

Manure covered flooring has a major influence on the incidence of DD in housed cattle, especially if hooves are immersed above the coronary band (where the skin/hair of the leg meets the hoof). This often occurs when cows step into the deep wave of slurry being pushed by automated alley scrapers that are run too infrequently. The degree of routine exposure of hooves to slurry can be judged by scoring the amount of manure caked on the lower leg and hoof.
The greater the manure contamination of the lower leg and hoof, the more frequently cows should be foot bathed. In herds with fewer than 25% of cows scoring 3 or 4, foot bathing can be done once or twice per week. Conversely, where herds have more than 75% of cows scoring 3 and 4, foot bathing may be necessary 7 days per week.

The diagram on the right illustrates the dynamics of DD infections. Chronic lesions (M4) are the long-term reservoirs of DD and the precursors of active lesions. Foot bathing is aimed at preventing chronic lesions (M4 and M4.1) from reverting to acute (M2) lesions.

A 5% solution of copper sulfate (CuSO₄) or a 3% formaldehyde solution are the standard footbath treatments to which others are usually compared. However, the accumulation of copper in soils and crops resulting from discarded hoof bath solutions is a concern. Formaldehyde is both carcinogenic and can cause severe burns. When considering options, look for products whose efficacy has been independently confirmed, such as:

- Thymox® (www.thymox.com);
- Hoof Sol Bath® (www.diamondhoofcare.com);
- Hoofsure Endurance® (www.provita.co.uk).

Foot bathing strategies often fail for one or more of the following reasons:

- The depth (should be >75 mm) or initial concentration of the preventive product is not adequate.
- Too many cow passages occur (>150 - 200).
- Footbaths are too short (should be >3 metres).
- Concentration declines over time.
- Footbath solution is replaced by manure.

**Treatment**

DD treatment is aimed at arresting the progression of M2 into M4 and M4.1 lesions. Oxytetracycline in a wide variety of dose rates and a range of commercial and home-made preparations is the standard treatment. However, this (or any other) antibiotic should not be used without a veterinary prescription and there is a real risk of milk contamination if it is used in excess. Many alternatives are available but few have been demonstrated effective in independent trials.

Lesions must be thoroughly cleaned before applying product. Application of a bandage after treatment is debatable. Since Treponemes thrive in the absence of oxygen, a bandage that remains on for more than 1-3 days is not appropriate. Ideally, animals (including heifers) should be inspected and active lesions treated every 2-3 weeks.