

Facts on Footrot

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Submitted to: *Cattle Business Magazine*, March, 2013

The welcome appearance of sunshine brings us all a little relief from that muddy mess left behind by weeks of rain that Mississippi springtime is so well known for. During this time of the year it is important not to overlook herd health. Wet, muddy and sometimes icy conditions can lead to leg and hoof problems, often resulting in lameness.

According to the USDA, footrot accounts for approximately 20% of all lameness in cattle, with an infection rate of close to 1%. It is the second most prevalent condition affecting all beef breeding females, closely following pinkeye. Footrot is more commonly seen in adult beef cattle than in youngstock or in dairy cattle. While the disease occurs year round, it is seen more often wet and muddy seasons.

The term “footrot” is often used loosely when cattle have an infection of the skin of the feet resulting in lameness. The most common clinical sign of footrot is the sudden onset of mild to severe lameness, mostly originating in the hind feet. Cattle are reluctant to move, and appear to walk on their toes with a hunched back in attempt to take pressure off of their feet. Affected animals may or may not have a fever, and lactating cows have decreased milk production. Lameness and pain results in reduced appetite, leading to a loss body condition in more severe cases.

Footrot is caused by a deep tissue bacterial infection in the interdigital space of the foot. *Fusobacterium necrophorum* (Biotypes A & AB) is the most common cause of the disease, but infection with other organisms such as *Dichelobacter nodosus* (*Bacteroides*), *Arcanobacterium* (*Actinomyces*) *pyogenes*, and *Porphyromonas* species has been demonstrated. *F. necrophorum* is commonly found in the environment and can be a natural inhabitant of the bovine rumen and feces. Under normal conditions, the bovine skin acts as an efficient barrier to disease-causing pathogens. However, breaks in the skin allow for harmful bacteria to invade tissues of the foot. Bacteria invade through damaged skin, and cause destruction of tissue, potentially leading to a deep invasive infection. A water-softened interdigital area (from prolonged standing in mud or other waters) or traumatic injury to the interdigital area from abrasive surfaces (stones, frozen or dried mud, foreign objects) can make cattle more susceptible to infection with footrot.

The epidemiology of the disease is still not well understood. Some believe that a synergistic effect of multiple bacteria can cause more severe footrot lesions. It has been noted that certain farm operations may have a higher incidence of footrot compared to nearby ranches of similar management and environment. In warmer months, animals grazing stubble in dry pastures can also be affected with footrot, presumably caused by increased tissue damage from rough surfaces. In feedlots, footrot is often reported when animals are housed in dry, dusty pens. These scenarios suggest that there may be complex bacterial agent, animal susceptibility and environmental factors that all contribute to the development of footrot.

A diagnosis of footrot is made by observation of clinical signs and by examination of the affected feet. When an animal is brought up for examination for lameness, it only takes a few minutes to wash the foot off and take a good look. Other causes of swelling and lameness should be ruled out such as a sole bruise/abscess, laceration, or foreign object in the interdigital space. In footrot, mild to moderate swelling occurs in the interdigital space and along the hairline of hooves. Affected feet will have a foul odor and be painful to the touch. An oily discharge at skin-hoof junction, primarily between the bulbs of the heel, may be seen.

Treatment: In order to be effective and prevent deeper tissue infection, treatment for footrot should be started as soon as signs are noticed. Footrot can become chronic and result in permanent injury if the infection spreads to deeper tissues and joints. Mild cases can be treated by cleaning the foot and applying a drying agent such as 5% copper sulfate. In some areas, mild cases may disappear in warmer temperatures without treatment when the feet dry out. However in most areas it is difficult to keep the feet dry, and systemic treatment is necessary. The most effective treatment involves administering injectable antibiotics early in the course of the disease. Drugs of choice include long-acting oxytetracycline, ceftiofur, procaine penicillin, and florfenicol.

In addition to injectable antibiotics, with moderate or more severe cases of footrot, affected feet can be wrapped with a topical antibiotic dressing if the animal can be kept in a dry area. Applied properly, these wraps will fall off on their own after a few days. Footbaths (2% formalin, 5-10% copper sulfate) have also been used to treat and prevent footrot in dairy cattle. However, in a pasture setting, footbaths tend to become quickly contaminated and may serve as means of spreading the disease if not frequently changed. Studies show that the inciting organisms can survive in the environment for 1 – 10 months, depending on the pH and moisture in the environment. Therefore, animals with footrot should be moved to the driest pasture location possible, away from potential sources of injury such as stones and other rough surfaces, and closely monitored for more serious or retractable infections.

Prevention: To avoid conditions that favor footrot development, manage your pasture to keep animals from feeding or loafing in wet, muddy, low-lying areas. Feed in higher elevation areas of the pasture, away from high-traffic areas and rough surfaces, and utilize concrete pads if available. Maintain a good nutritional program for your herd and avoid mineral deficiencies, especially zinc, copper, and selenium. A zinc deficiency has been associated with some cases of footrot, and supplementation with this mineral important for skin and hoof integrity is often recommended. A vaccination against *F. necrophorum* is available but clinical efficacy in natural settings has not been consistent. Two vaccinations must be given, an initial shot followed by a booster, with annual revaccination. Producers may use vaccination strategically to cover times when their animals are most at risk. Vaccination will not provide any protection to an animal if clinical signs have already started. Consult your veterinarian if footrot vaccination is being considered in your herd.

In addition to footrot prevention, good herd management under wet and muddy conditions can also help protect your herd from other harmful conditions. By moving hay bales frequently and feeding away from muddy areas, you can decrease udder contamination and the risk for calf scours. Managing your pastures to minimize mud exposure can also help prevent feet and leg injuries, which often occur during mounting in the spring breeding season. As always, make

sure your herd is well-vaccinated against *Clostridium* spp. (such as blackleg), to prevent the disease which can also increase in wet muddy conditions.

Additional information is available from your veterinarian and your livestock extension specialist on helping you manage your pasture, feed and animals throughout the spring season.



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