Questions and concerns about foot scald and footrot in sheep and goats continue to be asked by producers. Without question, this is one of the most serious diseases facing sheep and goat producers. It is a very frustrating disease to deal with as it is difficult to eradicate. Often, producers think they have eradicated it from their flocks/herds and it comes back. The purpose of this article is to give some overview of these conditions and perhaps give ideas on how to eradicate the disease from individual operations or to help clean operations from acquiring it.

**What causes foot scald and footrot?**

There are two anaerobic bacteria that combine to cause footrot in sheep and goats. These are *Fusobacterium necrophorum* and *Dichelobacter nodosus*. Warmth and moisture along with anaerobic conditions are environmental conditions where the bacteria thrive. The *F. necrophorum* bacteria is present on all sheep and goat operations as it is a normal inhabitant of the gut and is spread via feces. The *D. nodosus* bacteria are not native to the animal and when it is introduced to a nonexposed flock/herd it combines with *F. necrophorum* bacteria to cause footrot.

To further complicate things, there are more than 20 strains of *D. nodosus* known to exist. These strains differ in virility and how serious a disease problem they cause. The bacteria secrete protease enzymes which digest and destroy the hard horny tissue of the hoof. The more virile the strain(s) present, the more serious the disease issue.

**What is the difference between foot scald and footrot?**

Sometimes there is no difference; the scald is simply a precursor to active footrot. The first thing recognized is a scald and untreated it progresses to footrot. In other cases, scald is the end result and hoof damage and under running of the hoof wall does not occur.

Depending upon the strain(s) or *D. nodosus* present footrot is termed either benign or virulent. Benign footrot often just causes reddened, irritated, whitish tissue between the hoof toes. This condition is commonly referred to as scald.

Virulent footrot however, is caused by strain(s) of *D. nodosus* that cause much more hoof damage. Increased digestion of the hoof and actual under running of the hoof wall can occur.
Separation of the hoof wall from other foot structures can occur in advanced cases. Serious infection and even fly strike can also result in untreated virulent footrot.

The term foot scald can often be confusing as it is often used to describe several conditions. One can be benign footrot caused by weak strains of *D. nodosus*. Another is a type of scald caused by the *F. nechrophorum* bacteria acting alone when environmental conditions of high levels of manure coupled with high ground moisture are present. This type of scald is not as prevalent as benign footrot and is much easier eradicated; often improving the environment will result in self curing. Foot scald can also be the first sign of virulent footrot. Scald is noticed and left untreated, it results in active footrot.

**How can footrot and foot scald be eradicated? Or why can’t I get rid of it?**

This is one of the reasons why the disease is such a bad one, it is very difficult to eradicate. The biggest reason it is so hard to eradicate is that once *D. nodosus* is introduced to a herd it tends to live in the cracks and crevices of some sheep and goats hooves even when environmental conditions are not conducive to active footrot. These carrier animals may not be limping until conditions become more favorable to *D. nodosus* propagation and active infection, but the bacteria is still active as long as anaerobic conditions exist.

These carrier animals, that often do not exhibit symptoms, are what make eradicating footrot so difficult. It is also non symptomatic carrier animals entering a footrot free operation that causes the disease to be introduced. Thus, the old axiom “you buy footrot”.

Keep in mind that *D. nodosus* will only live in the soil for about 14 to 21 days, but can live in hooves indefinitely.

To be successful eradicating footrot from an operation, one has to be willing to cull carrier animals that can be identified. In addition to those chronically limping that are hard to clear up, carrier animals are also the ones that are always the first to start limping when conditions become ideal for foot problems. People serious about eradicating footrot should keep records on those animals that get the disease, and when they get it, to try to accurately identify the carriers.

One very successful way of eradicating footrot, especially with small operations, is to sell all the sheep and goats to market on the property and wait at least 14 days before replacing them. Replacing with clean stock of course. This rids the property of carrier animals and also by waiting 14 to 21 days, the *D. nodosus* does not survive on the property. Of course this is not always feasible in many operations, but when it is, it is very effective.

Some characteristics of a successful eradication program include:

- Having different areas that animals can be segregated into depending on their infection status. Placing noninfected animals (on clean facilities, where footrot infected animals
have not been present for at least 14 days) away from infected will enhance the chances of eradicating footrot. Initially, two areas are needed- one for infected, one for clean. As some of the infected animals are cleared up, a third clean area is needed to keep them isolated until certain they are actually clean before mixing with noninfected.

- Willingness to cull those in the infected group that can’t be cleaned up, even with heroic effort.

- Aggressive hoof trimming- removes areas \( D.\ nodosus \) can live in and introduces oxygen.

- Foot soaking is better than foot bathing. Soaking for 15 to 30 minutes in a drying agent solution such as zinc sulfate 3 to 4 times per week is more effective than daily quick running through a foot bath. This is for those identified as infected. Another advantage for animal segregation is the bulk of the effort can be directed at those actually infected.

- Using an antibiotic in conjunction with foot soaking and hoof trimming. Check with a veterinarian in regards to choice of antibiotic, including withdrawal times, as some animals will need to be marketed.

- Vaccines may or may not be effective. Current vaccines on the market cover about eight strains of \( D.\ nodosus \) and over 20 exist. The vaccine does help with eradicating, but it doesn’t act like a typical vaccine such as CD&T. There is not long term immunity to \( D.\ nodosus \) by the animal.

Even doing these procedures don’t guarantee success. Eradicating footrot is very difficult, costly, and time consuming. It is easier to not introduce it to the flock in the first place.

**Further information**

For more in-depth information on footrot and foot scald see the following free publication from Purdue University: