Sheep footrot is a painful, debilitating bacterial infection of the foot that can lead to severe production losses and increased culling of ewes. Sheep footrot is not the same as the infection that is seen in cattle, but it can be shared with goats; therefore goats must undergo the same prevention and control measures as sheep.

The best way to deal with sheep footrot is to avoid introducing it to your farm!

Be very cautious when you purchase sheep, and manage the biosecurity of your flock carefully. If, in spite of your best efforts, your flock does become infected, and you find yourself with several lame sheep, there are some basic facts you need to know in order to start an eradication program.

Math Made Easy

Once it is determined how big the footbath needs to be to hold the desired number of sheep, measure the inside of your footbath in centimetres or inches.

### Metric Measure

#### Litres of zinc sulphate required

1. Width (cm) X Length (cm) X Depth of 8 cm
2. Divide the answer by 1000 = number of litres
3. Number of litres (from 2) X 0.2 = number of kg of zinc sulphate required
4. Number of litres (from 2) X 1.75 = number of mL of laundry detergent

#### Kilograms of zinc sulphate required

1. Width (cm) X Length (cm) X Depth of 8 cm
2. Divide the answer by 1000 = number of litres
3. Number of litres (from 2) X 0.2 = number of kg of zinc sulphate required

#### Millilitres of laundry detergent required

1. Width (cm) X Length (cm) X Depth of 8 cm
2. Divide the answer by 1000 = number of litres
3. Number of litres (from 2) X 1.75 = number of mL of laundry detergent

### Imperial Measure

#### Gallons of zinc sulphate solution required

1. Width (inches) X Length (inches) X Depth of 3 inches
2. Divide the answer by 280 = number of gallons
3. Number of gallons (from 2) X 2 = number of pounds of zinc sulphate required
4. Number of gallons (from 2) x 2 = number of cups of laundry detergent

Herd animals into the foot bath and keep them standing in it for one hour. Do not let the animals drink the solution; it is toxic. The solution becomes less effective with use. The quality of the solution can be measured with a battery tester (not anti-freeze tester). If the zinc sulphate concentration falls below 15 percent it will not be effective at all. Because zinc is toxic, disposal of the solution must be done carefully so that it does not become an environmental hazard.
Causes of Lameness in Sheep

Active sheep footrot requires the presence of at least two separate bacteria in the foot:

a. Fusobacterium necrophorum is a common bacterium found in soil and present in animal feces.
b. Actinomyces (Corynebacterium) pyogenes is a common bacteria in soil and is also commonly found in foot abscesses.
c. Dichelobacter (Bacteroides) nodosus is responsible for sheep footrot infection. It lives in the feet of sheep, and can only survive for seven to 14 days anywhere else. Dichelobacter can persist for up to three years in chronically infected hooves.

There are three clinical causes of lameness in sheep associated with these bacteria; they are all related but it is important to be able to tell the difference between them.

a. Interdigital dermatitis (between the toes), also known as foot scald, is an early infection with Fusobacterium. Sheep with interdigital dermatitis have a moist, reddened, angry-looking lesion between the toes, often with a whitish layer of dead tissue on the surface. Lameness is usually mild but may progress to severe in some cases. It is generally seen during breaking work. Footrot treatment is time-consuming, expensive and back-breaking work.

b. Foot abscesses may occur when Actinomyces invades tissue already weakened by an interdigital infection. The sheep will be severely lame and an abscess can be drained from the sole of the foot. In prolonged cases the abscess may rupture and drain from the coronary band (the area at the top of the hoof where it meets the hair on the sheep’s leg). Footrot is extremely painful! It starts between the toes then under-runs the sole, causing the sole and the hoof wall to separate. The bacteria eats away at the hoof tissue, causing the foul smell associated with the disease.

Dichelobacter involved. Vaccines may help, when used in conjunction with foot trimming and soaking, but will not take the place of a comprehensive program of trimming and soaking.

Footrot vaccines are available in some countries, but are extremely variable in efficacy. This is due in part to the many different strains of Dichelobacter involved. Vaccines may help, when used in conjunction with foot trimming and soaking, but will not take the place of a comprehensive program of trimming and soaking.

Foot abscess

Infection does not provide natural immunity to the disease. Young lambs may show signs of foot scald when housed with chronically infected ewes. Carrier sheep often have misshapen feet and may require more frequent foot trimming. Acute sheep footrot is usually accompanied by a distinctive foul odour and discharge.

Diagnosis in severe cases is based on clinical signs of lameness, separation of the hoof, discharge and foul odour. In early cases of interdigital dermatitis and less virulent strains, samples should be submitted to a lab by your veterinarian for confirmation.

Treatment of sheep footrot is time-consuming, expensive and backbreaking work. The best defense is to avoid bringing carrier animals into your flock. However, if your flock does become infected, it is not necessary to cull the entire flock. Sheep footrot is a treatable disease and can be eradicated from your flock if strict protocols are diligently followed.

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Footrot damage is visible from the exterior of the hoof. The foot on the left has recovered but has a permanent crease where the hoof wall has collapsed. The middle hoof shows the dark shadow where the tissue underneath has died. The foot on the right has also recovered but is growing erratically.

Protocol for Eradication of Sheep Footrot

1. Thoroughly examine the feet of ALL sheep in the flock. Don’t forget the rams.
2. Sheep with severely infected, misshapen or chronically infected feet should be culled.
3. Sort the flock into two groups; those with apparently sound, healthy feet (the exposed group) and those that are lame or known to be infected (the lame group).
4. Animals in the exposed group should have their feet carefully trimmed, and be footbathed in a 20% zinc sulfate solution according to the schedule in Figure 1. Disinfect hoof trimmers between animals.
5. After trimming and footbathing, move the exposed group to clean ground (no contact with sheep for at least 14 days). Make sure they do not go anywhere near the infected group or walk on ground the infected group have walked on.

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Footrot treatment is time-consuming, expensive and back-breaking work.

Foot rot is extremely painful! It starts between the toes then under-runs the sole, causing the sole and the hoof wall to separate. The bacteria eats away at the hoof tissue, causing the foul smell associated with the disease.