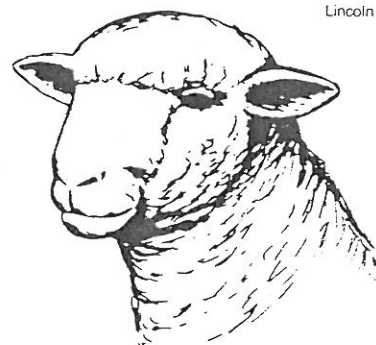


# Footrot Control in Sheep



by Helen A. Swartz, State Sheep, Goat and Small Livestock Specialist

## Situation

Examination of your flock showed some lame sheep. Closer observation revealed swelling, redness and moist areas between the toes. One or more feet are involved and footrot is suspected. If the problem is not attended to and both front feet are involved, the animal will begin to kneel while feeding or lie down and refuse to move. The animal will soon begin to lose weight. Footrot can result in tremendous economic loss in a sheep operation, second only to coyotes and dogs.

## Cause

Footrot is caused by a synergistic reaction between two organisms - *Fusobacteria necrophorum* and *Bacteroides nodosa* - in the foot. One of them, *Fusobacteria necrophorum*, is nearly always present in the environment. The other, *Bacteroides nodosa*, can survive a maximum of two weeks if not residing in the hoof. *Bacteroides nodosa* produces a powerful enzyme that destroys the tissues of the hoof by migrating through the soft tissues to areas under the horn. One or two weeks of wet feet and hot humid conditions creates an ideal environment for footrot-causing bacteria to grow. Foot injury caused by rough concrete and other hard surfaces may also wear the hoof down, leading to easy bacteria entry and growth.

## Clinical Signs

Lameness will be observed from time to time in all flocks. This may result from foot injury, foot breakage, sheep fighting around feed bunks, rams butting ewes, sharp objects stuck in the hoof, mud, brittle hooves cracking, and injury to other joints in the legs.

In more advanced cases, the foot will be red, swollen and appear moist or greyish-yellow when examined. The foot will also be sensitive when pressure is applied.

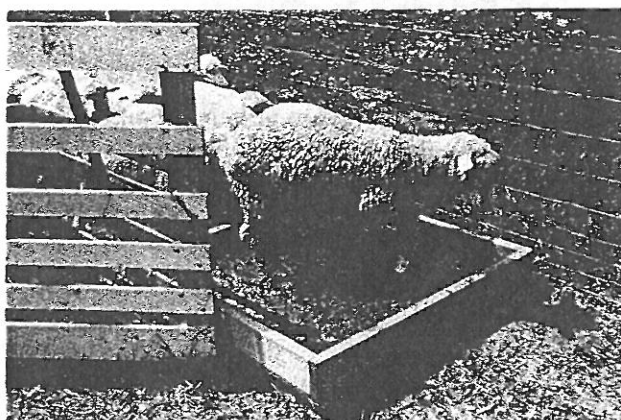
## Treatment

The earlier footrot is diagnosed, the quicker it can be treated and cleared up. One method is to use a footbath which can be constructed or purchased. Construction of a footbath from a 4' x 4' piece of plywood for the bottom and 2" x 6" boards on the sides will work quite well when placed in strategic spots where sheep must walk to get water. Splashing can be controlled by placing sacks or pieces of carpet or tag wool in the bottom.

Copper sulfate (20% solution) or 10% zinc sulfate can be used daily in the bath. Formalin (10%) can also be used as a bath, but not daily because of irritation to the foot. A 10% solution of formalin can be made by mixing a gallon of 37% formaldehyde to 9 gallons of water.

Copper sulfate solution can be prepared by adding 32 lbs. of copper sulfate to 20 gallons of warm or hot water so that the copper sulfate will dissolve. It has the disadvantages of staining wool and being corrosive to metal. Also, decreased effectiveness is noted when dirt and manure enter the bath.

The most effective treatment in controlling footrot without trimming the feet is a 10% solution of zinc sulfate (Cross & Parker, 1981). The preparation of a bath containing 8 lbs. zinc sulfate in 10 gallons of warm water, stirring until dissolved, results in a 10% solution.



Each of these treatments can be used as a precautionary measure. None of them however, should be consumed by the sheep as toxic effects will result. **DO NOT ALLOW THEM TO DRINK OR CONTAMINATE OTHER DRINKING WATER.**

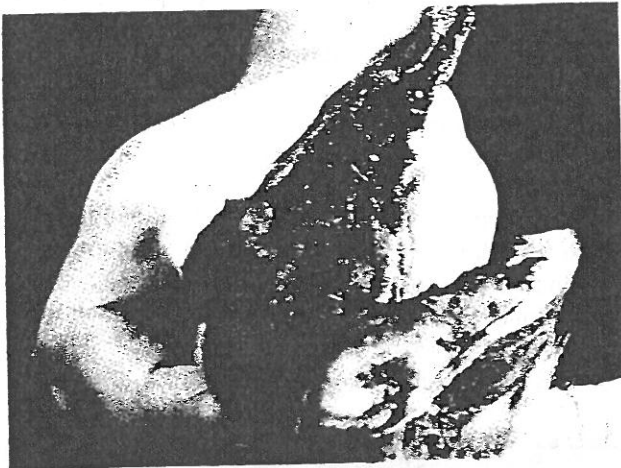
### Limitations to Treatment

Sheep treated in footbaths of zinc sulfate, copper sulfate or formalin for footrot should not be allowed to walk through the solutions and back through muddy areas or on grass wet with dew. This will dilute the compounds on the feet and render the treatment ineffective.

Lame sheep should be separated from healthy sheep to retard the exposure to the bacteria causing footrot.

Sheep not responding to the foot bath in two weeks following treatment should have feet trimmed very closely (bleeding may occur) and a topical spray applied after the bleeding stops. The feet must be trimmed down to the healthy tissue if treatment is expected to be effective.

Sheep not responding to treatment following footbaths and trimming with topical application should be culled. Otherwise, they will remain as carriers and affect the healthy flock. Cull all mature animals with deformed feet, they probably are carriers. It only takes one carrier in a flock to continuously spread infection to other sheep in the pasture or drylot.



### Other Effective Measures of Control

Hydrated lime scattered in yards and pens is also effective in destroying footrot-causing bacteria. It can be placed in areas where sheep congregate: around waterers, feed bunks or salt and mineral sources. It will not replace walk-through footbath solutions.

### How to Prevent Footrot

When purchasing sheep, never buy from a flock in which you have observed lame sheep. Bring newly purchased sheep home and keep them confined for two or three weeks and observe for lameness. If the animals begin to limp, examine the feet and treat for footrot by trimming closely and applying a topical spray of 10% formalin, 20% copper sulfate or 10% zinc sulfate. If they continue to show signs of lameness, contact the person from whom you purchased the animals to negotiate with them or sell the animals rather than expose the entire healthy flock.

### A Systematic Treatment Plan To Eliminate Footrot

1. Separate all lame sheep from the flock.
2. Run the non-lame group through a 10% formalin footbath and relocate to a pasture or lot previously unoccupied for 14 days.
3. Treat affected lame sheep by running them through a footbath containing 10% zinc sulfate to reduce the percentage of affected animals when the number is large and labor availability critical.
4. Place the footbath in a strategic area where the infected sheep will walk through it several times a day.
5. When the number of affected animals is small, feet should be trimmed prior to exposure to the footbath.
6. Approximately 75% of the affected feet will be completely healed without trimming within four weeks, if feet remain dry following footbath treatment.
7. Remaining affected animals will require individual treatment of trimming feet to expose diseased areas and subsequent treatment with a topical 10% formalin spray.
8. Run animals through clean 10% zinc sulfate footbath for two more weeks.
9. Animals not responding to treatment should be sold.
10. Purchased animals should have feet trimmed and treated topically with 10% zinc sulfate, and isolated for two weeks before introducing to the existing flock.

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