

Footrot in small stock: Put your best claw forward

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The relief brought about by wet weather conditions during the rainy season is unfortunately also associated with diseases such as footrot. Footrot is one of several causes of lameness in small stock and its origin and prevention, as well as the treatment of lame animals, will therefore differ. Lameness is detrimental to animal welfare, production and reproduction, and ultimately profitability.

A number of footrot-causing bacteria have been isolated in infected claws. These bacteria are highly contagious and penetrate the claw through wounds caused for example by ticks, thorns, torn skin or other injuries.

Extended wet grazing conditions are the ideal environment for these anaerobic bacteria to thrive in. The bacteria feed on skin and/or hoof material and can survive for extended periods in the claws of small stock (for up to three years in animal claws and two weeks in infected camps).

Symptoms and prevention

Symptoms of footrot range from swelling between the claws to severe cases where a purulent blackish-grey discharge is visible. Because of the severe pain and discomfort footrot causes, animals will struggle to walk, and will even stand on their knees or lie down.

When animals walk the claw separates, putting pressure on the interdigital skin, increasing the occurrence of footrot if the culprit bacteria are present. Heavy animals, such as rams and late-pregnant ewes, are therefore more likely to contract the disease as their weight puts strain on the claws. Young animals are also more susceptible than older animals due to their weaker immunity.

Animals with footrot will feed less, leading to poorer condition and loss of wool growth in sheep. Sheep normally graze for an average of seven hours a day, but sheep and goats with footrot will spend much of their day lying down, rather than looking for grazing.

Apart from footrot-associated production losses, treating this disease is very time consuming and labour intensive. The focus should therefore always be on preventative action.

Footrot is less common in animals in good condition with a strong immune system. The immunity of animals given a balanced diet and enough vitamins and minerals is also higher. Building on this is a good vaccination programme that will further enhance their immunity.

The role of microminerals

Microminerals play an integral role in supporting and maintaining a healthy immune system. Stress factors suppress immune function, whereas microminerals counteract this suppression process. Manganese, copper, zinc and selenium are microminerals that should be ingested in small amounts daily to maintain the immune system. Vitamins A, B6, B12 and E are also essential in supporting immunity.

Zinc can be singled out in the prevention of footrot. This micromineral, together with vitamin A, is important to the integrity – strength or structure – of the skin to keep footrot-causing bacteria from entering the body.

However, not all zinc compounds are the same. Inorganic zinc can be supplemented either as zinc oxide or as zinc sulphate. The percentage of zinc available for absorption by the animal will differ for each of these sources.

Since synergistic and antagonistic forces exist between minerals, not all the inorganic zinc is available for absorption. The microminerals supplemented in licks are typically in inorganic form.

In contrast, organic micromineral compounds – microminerals bound to organic molecules such as amino acids or protein complexes – are highly bioavailable. This ensures easier absorption through the intestinal tract and strong binding between the mineral and organic molecules, and limits antagonism towards other minerals.

Organic compounds are also absorbed by alternative pathways in the body and stored in body tissue. The body therefore absorbs a higher percentage of minerals. Where footrot is a major concern, the use of organic microminerals, while more expensive, should be considered.

Biosecurity and selection

Biosecurity is crucial for keeping footrot out of the flock. As the bacteria can survive for extended periods in the claws of animals, producers must familiarise themselves with the seller's flock health status before buying in new animals. Only buy from reputable breeders who follow good flock management practices.

Flocks that already harbour the bacteria should be moved through a footbath containing a 10% zinc sulphate solution, at the start of the rainy season – contact should last between five to ten minutes. During wet periods, flocks should be managed on drier pastures and camps.

Camps grazed by infected sheep should rest for at least two to four weeks before being grazed anew. Keep good records of infected animals and cull problem animals.

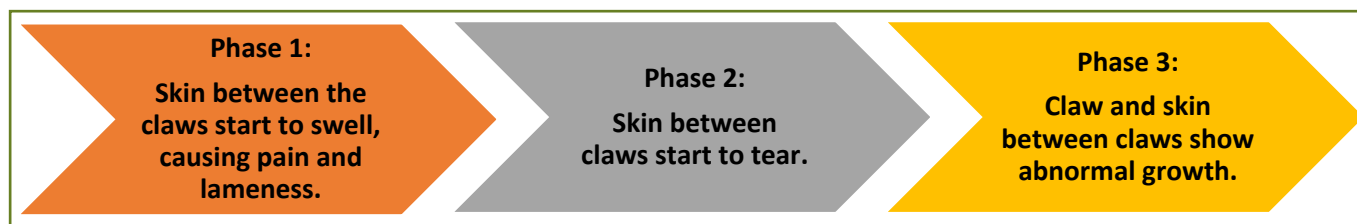
Resistance to the disease is hereditary, which means selection against footrot is possible. Resistance may be related to the structure of the hoof and the separation of the claw when the animal walks. With breeding rams, a 'no tolerance' policy against footrot should be followed, as they contribute 50% of the genetic value to each lamb crop.

Treatment and management

When footrot appears, it is best to consult the veterinarian regarding the appropriate treatment. Typically a footbath of copper sulphate, zinc sulphate or a disinfectant powder is recommended, but should be applied at the correct dose and contact time to be effective.

The purpose of the footbath procedure is threefold. First, organic matter such

Figure 1: The three phases of footrot.



as manure, which can reduce the effectiveness of the remedy, is washed off. Secondly, the footbath treatment disinfects the claws. After this, animals should spend 15 minutes on a dry surface.

General management measures

The following guidelines should be part of the management measures that apply on the farm:

- Provide enough bioavailable vitamins and minerals to build up animals' immunity to the bacteria. Copper and zinc help keep claws and skin healthy and strong, while manganese plays a key role in the ligaments and bone density of the joints that are part of the claw.
- Kraals and grazing camps should be dry. Avoid marshy camps where possible.
- Quarantine affected sheep (phase 1 of infection, *Figure 1*) for 30 days to limit the spread of disease.
- Bacteria cannot survive in a strong alkaline environment and agricultural lime should therefore be spread in kraals.
- When working among sheep, hygiene should be a priority to limit the spread of the disease.
- Trim claws regularly.
- When following the footbath route, push sheep without lesions through first, followed by sheep showing early signs of footrot, and finally severely affected sheep.

Because lameness impairs the welfare and production capacity of animals and has a direct economic impact on the producer, this problem must be approached preventively.

Prompt action to strengthen the flock's immune system yields the best results. Biosecurity measures must be in place to keep carrier animals out of the flock. Integrate a set health plan into your flock management plan to curb footrot. **SF**

For more information, contact Annelie van Deventer at annelie@feedtek.co.za.

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