

Stephen Gates 0447 164 701

Nutritionist

## Managing Foot Abscess

Sheep producers are well aware of the effect that foot abscesses have on their stock. And, over the last few years, we've have had plenty of practice dealing with the issue.

Traditional, reactive treatments such as foot bathing and paring are not only time consuming, they also can add to stock distress, as well as only providing short term relief.

Additionally, by the time lameness is readily apparent, the sheep producer has already taken a hit in terms of lost production.

To properly understand why it occurs as well as the best way of treating or better still, preventing it, we need to be aware of what exactly is happening and why. And to do that, we need to understand how hooves form as well as the environment in which abscesses occur.

### ***The Environment:***

Foot abscess and scald are traditionally a condition of wet years, where high pasture/forage crop growth does not allow feet to dry out. These conditions, combined with nutritional factors, result in a weakening of the structural integrity of the hoof, allowing the causative agents to enter the hoof, eventually invading the deeper soft tissues causing intense pain.

Whilst more prevalent in Rams & twin bearing ewes, it can occur in all classes of sheep, both merinos and non-merinos.

So, what exactly are these causative agents?

2 species of bacteria, *Fusobacterium necrophorum* and *Actinomyces pyogenes* are the main culprits. Both normally live in the gut of sheep, and they get expelled in the manure. Hot, dry conditions over summer mean that these bacteria rarely survive long outside of its host.

### ***AT A GLANCE***

- *Lameness/Foot abscess have a major impact on flock productivity.*
- *Happy Feet is designed to overcome those issues, whilst providing the benefits of Pasture Lactation Lick.*

However, during the cooler months, damp soils, together with high herbage mass and ground level humidity allow *F. necrophorum* & *A. pyogenes* to survive for longer periods outside of its host. As sheep are grazing, or in stock camps, manure containing these bacteria are picked up in the hoof. As the

hooves (for reasons explained later) are lacking in structural integrity, they are able to invade the hoof (where it doesn't belong), setting up an infection and thus causing lameness.

Yes, a shot of penicillin will cure the infection in the short term. However, without addressing the issue of hoof integrity, those infections will re-occur.

Likewise, bathing in solutions of zinc sulphate will also, if done properly, provide short term relief until the new, structurally weak hoof grows through.

The bottom line is, unless we address the reasons why the hoof lacks integrity in the first place, we are setting ourselves up for a season-long battle with the issue.

### ***Hoof Formation***

Hooves are made of a fibrous structural protein called keratin. Initially living, epidermal cells, it is the death of these cells (keratinization) that form the hard, outer hoof.

This process is dependent on the correct supply of a range of different nutrients. When the supply of these nutrients is compromised, then the structural integrity of the hoof is also compromised.

The major nutrients for hoof formation are:

- ***Methionine:***

A sulfur based amino acid; methionine is one of the 3 amino acids (AA) that make up keratin. 2 of these, alanine and glycine, are classed as non-essential amino acids, meaning the animal can make these themselves from protein ingested in the diet. Methionine however is an essential AA, meaning the animal cannot manufacture them and therefore it must be provided from the diet. Thus, methionine is needed to stimulate strong hoof growth.

- ***Zinc:***

Zinc is basically the 'glue' that binds the keratin cells together and a lack of Zinc in the diet leads to incomplete keratinization. Zinc is also vital for rapid wound healing, epithelial tissue repair and cellular integrity. During the period of active infection, the sensitive lamina and its network of capillaries are damaged, and zinc plays a role in increasing blood supply to these damaged areas.

- ***Calcium:***

Calcium activates the enzymes that form keratin from amino acids as well as binding the keratin fibers together.

A point about calcium here. We know that foot problems tend to occur in the cooler months of the year. At this time, our ewes are either lactating, which requires calcium for milk production or growing out the young lamb(s) in utero, where calcium is required for bone formation in the developing fetus. These needs will always come first. Only when those needs are met will calcium be available for hoof formation.

- ***Magnesium:***

Important for protein (keratin) synthesis and blood circulation to the hoof

- ***Biotin:***

Biotin, a B group vitamin, also helps bind the keratin cells together as well as promoting faster hoof growth.

### ***The Effects of Foot abscess in Sheep***

Abscesses can occur in either the toe or the heel, with heel abscesses being more common. Affected sheep won't move to graze resulting in a loss of condition that then leads to metabolic issues with lambing ewes and can potentially lead to lamb dystocia at partum and lamb starvation post-partum. Rams affected will be reluctant to mate.

In all cases, those affected will remain more susceptible to foot abscess throughout their lives.

### ***'Happy Feet'***

Fabstock's '***Happy Feet***' has been developed to assist sheep producers to overcome the debilitating effects of foot abscesses, healing the hoof from the inside out. '***Happy Feet***' is our **Lactation Pasture Lick** with elevated levels of Biotin and Organic Zinc, to strengthen the hoof from the inside and therefore can be used as both a preventative and curative treatment. '***Happy Feet***' should be considered where lameness has been an issue in the past. Organic Zinc used in '***Happy Feet***' has proven to be more bioavailable than inorganic zinc forms such as Zinc Sulphate.

### ***Management***

As with most nutritional challenges, management also has a role to play in prevention.

- Aim to have ewes at 2.8 – 3.5 score at lambing - another good reason, if one is needed to ultrasound ewes post joining and thus feed single & twin bearing ewes separately.
- Aim to have ewes carrying no more than 4 months wool at the commencement of lambing.

Please check out Fabstock's '**Lambing with Fabstock**' **FabChat** for more information on ewe preparation prior to lambing.

For any further information or clarification, please do not hesitate to contact the author or your local **Fabstock** reseller.