

Control of footrot in sheep

By Cathy Wainwright.



Lameness is a major health and welfare issue in the UK sheep flock, and although many of the primitive sheep breeds are believed to be more resistant to the common causes of lameness, they may still be affected, resulting in a loss of body condition, lower lambing percentages and reduced growth rate in youngstock.

Lameness may be caused by a number of factors, ranging from the physical (mud ball in the hoof, thorns, injury to the legs) to bacterial (footrot and scald) and viral (orf).

Footrot and scald are the most common factors and it is these that I will address here.

Footrot is a highly contagious disease, caused by dual infection with the bacteria *Dichelobacter nodosus* and *Fusobacterium necrophorum* (which also causes scald). *F. necrophorum* is widely found in the environment, especially in dung. *D. nodosus* survives primarily in infected sheep, although the duration of its survival on the pasture is not clear, probably a number of weeks. These two bacteria are closely connected and thrive on the by-products of each other.

Scald causes inflammation of the skin of the cleft between the claws of the hoof, and is commonly seen in lambs in warm, damp conditions, usually following damage to the skin when the lambs are running in long grass or on a thistly pasture. It is easily treated by footbathing or topical application of antibiotic by spray, but should be considered a flock problem and the whole flock treated.

Footrot is a more serious problem, arising when *D. nodosus* invades the interdigital space following scald. The infection then invades the horn and the deeper tissues, leading to separation of the horn, usually near the heel, and 'under-run' of the sole, and even up the wall of the hoof. Affected feet have a characteristic foul smell and a grey 'ooze' may be seen. It causes extreme discomfort to the sheep and leaves the animal highly vulnerable to blowfly strike in the foot or along the flank where the sheep tucks its foot when it lies down.

Treatment

Trimming

The old advice used to be to trim infected feet to 'open up the infection' and kill the anaerobic bacteria.

New research from Warwick University (see www.footrotinsheep.co.uk) has demonstrated that routine trimming of feet is not effective in the control of footrot and may in fact be a

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contributory factor in its spread, through transfer of infection via penning systems, trimming shears and leaving small pieces of trimmed, infected hoof on the pasture, as well as the physical fact that opening up the foot allows further spread of infection to other sheep.

In a small flock, the shepherd or flock owner may still wish to trim the feet to keep them in good shape, especially if showing, and therefore the advice here is to trim sparingly, never to draw blood, to disinfect the shears between feet and sheep, and to remove and burn all trimmings. If the hoof is infected, treat first with antibiotics (see opposite) and then trim about five days later when the inflammation has declined, rather than trim an inflamed hoof and end up with a sheep which is lame for much longer.

Footbathing

Various footbath preparations are available, but the most favoured nowadays is a zinc sulphate solution at 10%. Zinc is less irritating than formalin and does not cause the hoof to harden, although it may be more expensive, and to be effective requires the hoof to be immersed in it for a period up to 30 minutes (depending on the product used). Some zinc products contain an added detergent, which allows for greater penetration into the hoof in a shorter period of time. On a small flock basis, standing the affected hoof in a bucket of zinc solution or holding the foot in a jam jar may be an option, but generally footbathing is an efficient means of treating a whole flock. For quick treatment of lambs with scald, formalin is equally as effective as zinc and only requires the lambs to run through it.

There is some anecdotal evidence to suggest that spreading powdered lime around feeding stations or in gateways can assist in controlling the spread of foot infections.

Foot sprays

There are various foot sprays on the market, but there is a significant difference between the antiseptic type available from the agricultural merchant, and the antibiotic type only available from the vet. The antiseptic type may be useful for minor infections and may help in the treatment of scald, but generally the antibiotic type is the more effective for footrot.

Injectable antibiotics

The Warwick University study found that the flocks that were achieving the most effective footrot control were using an injectable antibiotic plus an antibiotic foot spray and treating a sheep as soon as lameness became evident. Feet were not trimmed or footbathed, but if three treatments failed to affect a result, the sheep in question was culled.

Injectable antibiotics attack the infection from the inside, and are therefore the most effective method of control. Dramatic improvement is usually seen within about three days, and unless the farm is organic there is no reason to not use this method. We do not, after all, usually avoid antibiotics for human treatment when we know they work. There is no known antibiotic resistance in sheep and the use of injectables is by far the most effective method in terms of the sheep's welfare. It is not, however, necessarily the first option to choose for lambs being reared for the food chain, especially if marketing is targeted to sell an additive-free rare breed product. For these lambs, external preparations should be tried first, but for footrot control in the breeding flock injectable antibiotic is without doubt the best solution.

Vaccines

There is now a footrot vaccine on the market, which can be used as part of a footrot control programme. It is best used at times of greatest challenge (in warm, damp conditions or if the flock is housed). It does have a curative effect on infected sheep, as well as a preventative effect on the rest of the flock, but is not universally effective for all sheep or all flocks. Flocks using this vaccine have reported less cases of footrot, and those cases are less severe. It is, however, a particularly nasty preparation to use, can cause a localised reaction at the injection site and requires extreme care for the person injecting it to avoid self-injection. As with injectable antibiotics, it should be regarded as a treatment for the breeding flock, not the growing lamb, although its advised use is as a whole-flock preventative.

Isolation

There is no doubt that isolation of infected sheep is important in any footrot control programme, as the infection is so highly contagious. If it is at all possible to achieve, aim to keep lame sheep separate from the main flock for about three weeks, and then only return them to the flock if you are certain the infection has gone. As mentioned previously, it is worth considering culling sheep from the flock that persistently show signs of footrot; not only do they harbour the infection and spread it to other members of the flock, but their offspring are likely to demonstrate the same susceptibility.

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