



Dermatitis (lumpy wool)

Lumpy wool, also known as 'dermo' or mycotic dermatitis is caused by the bacterium *Dermatophilus congolensis*. Dermatitis bacteria are inactive when the fleece and skin is dry but are released from scabs and become active in the presence of moisture. Infection by the bacterium causes the skin to become inflamed and release an exudate, forming scabs and the characteristic 'dermo' lumps in the wool. In some individuals 'dermo' becomes a generalized skin infection, typically over the back, flanks and upper surfaces of the body. The matted lesions are very susceptible to flystrike when they become wet. The lesions slow drying of the wool and this increase the risk of strike.

In sheep grazing long wet pasture, 'dermo' can establish on the lower legs, and may be referred to as 'strawberry footrot'. Often it occurs as flaky scabs or scales on the ears or noses of sheep where it is of little consequence but can be a source of spores for further infections. In most cases, the sheep develops immunity and the active skin infection heals within four to six weeks. However some animals fail to develop immunity and may be chronically infected. These animals should be culled.

Four conditions must be present for sheep to become infected with dermo.

1. A source of bacterial spores
2. Moisture to release spores from the scabs
3. A means of transfer of spores, in particular close and hard rubbing contact.
4. A break in the wax layer on the skin

There are three main situations in which these conditions can coincide:

Young lambs

Lambs do not develop a complete wax layer until about 5 weeks of age. Spores present in benign lesions on the faces or ears of ewes can be readily transferred to young lambs. This can be particularly a problem when lambing in wet conditions. Severe infections in lambs can cause ill thrift and even death.

Handling wet sheep

Handling young sheep in close confinement (for example, drenching) off shears when the sheep are wet is perhaps the most common time when dermo occurs. When sheep are dipped too soon after shearing dermo can occur in shearing cuts that have not properly healed. Dip scald can also provide a site for infection. Yarding wet sheep or holding recently jetted sheep in close contact can also aid spread if spores are present.

Paddock infections during wet periods

During wet conditions when sheep remain wet at skin level for extended periods, the skin can become scalded and liable to infection if spores are present. As for fleece rot, sheep that have fleece characteristics that prevent them from becoming wet to the skin or aid rapid drying will be more resistant to dermatitis.

After recovery, a strong long-term immunity to re-infection develops. The disease is mainly seen in young sheep but occasionally older sheep are affected, particularly when sheep from drier areas, which have not been exposed to the infection previously, are introduced to higher rainfall areas.

Spread

Dermatitis can spread through a mob when infected sheep become wet and have close contact with non-infected sheep. Severe and rapid spread may occur even if only a small percentage of a mob is initially infected. When the dry scabs on the face and ears or lumps in the fleece become wet, bacterial spores (zoospores) are released and can spread to sheep in direct contact.

The following steps will reduce the spread of dermatitis;

- Avoid prolonged yarding of wet sheep and situations (including jetting long woolled sheep) where wet sheep are in close contact.
- If plunge or shower dipping is planned, aim to finish the day's dipping by early afternoon and allow sheep to disperse immediately when they leave the dip. Do not hold them, closely packed, in draining pens for extended periods.
- Use of commercially available dip additives may limit the level of bacterial contamination in the dip fluid and thus act as a preventative. However, they do not cure established dermatitis. Zinc sulphate (heptahydrate form) can be added to the dip fluid at the rate of 4-5kg/1000L of dip wash (0.5% solution). This rate can be increased to a 1% solution if required. Ensure that zinc sulphate is compatible with the other chemicals in the dip fluid. Also ensure constant mixing of sump fluid to stop flocculation and reduced concentration in dipping fluid.
- Separate infected sheep from the flock to assist blowfly management and help reduce spread. Where sheep have active generalized lesions coming up

to the expected spring fly wave a preventative fly treatment should be considered.

Genetic aspects

Environmental factors are the predominant factor in infection.

There are two aspects of susceptibility to lumpy wool that are influenced by genetic variation. These are factors relating to immunity and characteristics of wool, skin and conformation that affect wetting and drying of the fleece.

Most animals will develop immunity to dermatitis and in most instances the active skin infection heals within four to six weeks. However, some sheep do not develop immunity and can be chronically infected and liable to flystrike. These sheep should be culled from the mob due to their ongoing susceptibility to flystrike.

Wool and skin attributes which allow water to reach the skin and/or allow moisture to be retained can be considered as predisposing factors, particularly for paddock infections. Factors thought to be important include:

- Conformational characters such as 'devils grip' or high shoulder blades that open the wool and let water in or slow drying
- Staple structure and tip formation that influence penetration of water into the fleece and rate of drying. Good structure is related to a low coefficient of variation of fibre diameter
- Wool grease composition - high suint acts like a detergent dissolving the protective wax layer on the skin and retards drying whereas high wax has a waterproofing effect.

Treatment

'Clean' shearing is difficult in sheep with active dermo lesions at the skin level. Treatment with antibiotics can be used to lift scabs, but is only recommended for severely affected animals that are likely to die if not treated or for stock soon due to be shorn. Treatment should be given at least six weeks prior to shearing to allow sufficient wool growth for the shearing hand piece to get under the scab. Antibiotic treatments can only be obtained through veterinary practitioners. Product label instructions, Australian Meat Withholding Periods (WHPs), Export Slaughter Intervals (ESIs) and Quality Assurance (QA) record keeping must be complied with when using antibiotics. ESIs do change and it is advisable to consult the Australian Pesticide and Veterinary Medicine Authority (APVMA) to obtain the current ESI (www.apvma.gov.au). The list of permitted antibiotics effective against dermo can also change, so it is essential to seek advice from your local veterinary practitioner.

Occupational health and safety

Avoid handling sheep affected by dermatitis when they are wet, because the disease can cause a skin infection in humans.