



Lumpy Wool (Dermo) and Fleece Rot

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Fleece rot and lumpy wool can have a significant effect on wool value by causing fleece damage and increasing susceptibility to blowfly strike. Other associated costs include culling and stock losses, treatment costs and reduced skin values. Both diseases are caused by bacteria and outbreaks are more prevalent in higher rainfall areas. Fleece rot is the major predisposing factor for body strike in the summer rainfall areas of eastern Australia whereas lumpy wool is the major factor in the winter rainfall areas of Western Australia. However, these diseases may occur simultaneously in the same sheep. Not all sheep that have these diseases will become struck especially if peak disease activity occurs in the cooler wetter times of the year before the peak blowfly season.

Lumpy wool

Lumpy wool, also known as 'dermo' or mycotic dermatitis is caused by the bacterium *Dermatophilus congolensis*. This disease occurs most commonly on the ears and nose especially on lambs. In some individuals it becomes a generalized skin infection typically over the back, flanks and upper surfaces of the body. In sheep on long wet pasture, dermo can establish on the lower legs, and may be referred to as 'strawberry footrot'.

In most cases, the active skin infection usually heals within four to six weeks, but can take several months, forming columns of scab in the wool. Severe infections in lambs can cause illthrift. After recovery, a strong long-term immunity to re-infection develops. The disease is mainly seen in young sheep. 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. Most infections start in the winter/spring period.

Lumpy wool is most common in Merinos, with fine wool Merinos being less susceptible as their fleece provide greater water proofing against wetting at the skin level.

Spread

Infection spreads 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. The bacteria

attack the skin causing inflammation which causes fluid to be released. This results in matting of the wool forming the characteristic lumpy wool scab. When the dry scabs (lumps) become wet again bacterial spores (zoospores) are released and become active leading to spread to sheep in direct contact. Transfer of infection occurs 30-45 minutes after wetting. The combination of wetting and close contact such as yarding can result in rapid spread of this disease in a mob.

The following steps will reduce the spread of dermo;

- 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.
- 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 dermo. Zinc sulfate (heptahydrate form) can also be added to the dip fluid at the rate of 4-5kg/1000L of dip wash, i.e. 0.5% but could use 1% if required. Ensure that adding zinc sulfate to the chemical used in the dip fluid is compatible. 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.
- 'Clean' shearing is difficult in sheep with active lesions at the skin level. For treatment, see below.

Genetic aspects

There are two components that are influenced by genetic variability. These are wool and skin characteristics, and factors relating to immunity. Wool and skin attributes which allow water to reach the skin and/or allow moisture to be retained can be considered as predisposing factors, and include;

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- High suint which acts like a detergent dissolving the protective wax layer on the skin
- Staple structure, density etc. It should be noted that although non-merino fleeces allow water penetration, they also allow rapid drying
- Adequate wax (lanolin) for waterproofing

The immune response is also determined by genetics. The few scabs seen on the nose and ears of lambs indicate that the close contact of the non-wool skin area with their mother has resulted in a mild dermo infection. However, in most cases the immune system will respond resulting in scabs disappearing and establishing long-term immunity or protection against the disease. Infection in individuals with a poor immune response will become generalised and will not self-cure within six weeks. These animals should be culled. The difficulty is that individuals with a poor immune response can only be identified if they are challenged with a dermo infection. This should be considered when selecting animals for environments where the dermo risk is high.

Treatment

Treatment with antibiotics is only recommended for severely affected animals that are likely to die or for stock due to be shorn to cause the dermo scabs to lift. This should be done 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 can also change, so it is essential to seek advice from your local veterinary practitioner.

Occupational health

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

Fleece rot

Fleece rot is a mild superficial skin infection caused by the combination of bacteria and moisture resulting in staining of the wool close to the skin. Green, yellow, grey and brown discolourations are common but, red, orange, pink, violet and blue may also be seen depending on the bacterial strain present. There is a genetic link between fleece rot and body strike so selecting animals resistant to fleece rot will reduce the incidence of flystrike.

Selecting for fleece rot resistance

Improvement in flock resistance to fleece rot can be achieved by culling high scoring animals for fleece rot and culling animals that become struck. As young animals are most susceptible to fleece rot, scoring is best done 10 days or more after a prolonged rainfall period of three to five days. The areas to check are along the backline over the poll, wither, the loin and rump. A scoring system of 1 to 5 can be used to grade the level of staining and crusting seen when the fleece is opened from the staple tip to the skin. Consult the Australian Wool Innovation website (www.wool.com.au) for a pictorial guide to scoring. It takes about 10 weeks post shearing for the fleece to regain its full water proofing capacity.

Breeders can decide how much selection pressure they wish to apply to this trait. One option is to ensure that the weaner/hogget ewes are not shorn within this period but do the opposite with the young rams. This will exert maximum pressure on the majority of fleece disease traits in the rams.

Ram selection

Good genetic gains can be achieved by sourcing rams from breeders who select against fleece rot and body strike. Also consider the other traits involved with resistance to blowfly strike; low wrinkles, reduced wool coverage on 'the points' and breech areas and reduced scouring and dag formation.

Further information will become available from an AWI funded research project conducted by DAFWA and CSIRO on breeding for breech strike resistance.