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Dispelling some myths about 'dermo'

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There are a lot of misconceptions and myths about dermatophilosis, a disease which can kill young lambs, affect wool quality, make shearing difficult and make sheep susceptible to fly strike.

One misconception is perpetuated by the incorrect use of the common name mycotic dermatitis, which implies that a fungus causes the disease. This is not so.

The disease is caused by the bacteria Dermatophilus congolensis, which attacks the sheep's skin and eventually forms a lesion or scab in the wool, and so is better called dermatophilosis, 'dermo' or 'lumpy wool'.

Veterinary Epidemiologist at the Albany Regional Office, J. R. Edwards, discusses some of the myths associated with 'dermo'.

‘Dermo’ lesions in wool showing the typical 'cauliflower tips' appearance seen in severe cases.
One popular belief is that 'dermo' scab is removed during scouring. Scab in wool samples from 'dermo-affected' sheep was not removed using conventional scouring techniques at a commercial scouring plant, at the Australian Wool Testing Authority nor at the Department of Agriculture's laboratories.

Conventional scouring only removes a small amount of scab. The main effect of the moisture and warmth is to soften and flatten the scab as it goes through the rollers in the drying process. With the advent of new scouring processes using minimal chemical and fluid volume, possibly less of the scab will be removed.

Most of the scab is removed during carding and combing. However, small flecks of scab may remain in the top at completion of processing. These flecks may cause uneven uptake of wool dyes and consequently affect the value of the finished product. For this reason the wool is downgraded and blended with inferior top-making lines.

Some 'dermo-affected' wool undergoes additional treatment to break down the scab material before processing. This further increases scouring costs and so decreases the value of contaminated raw wool.

The Australian Wool Corporation recommends that 'dermo-affected' wool is classed and sold separately to the main fleece line. Occasionally 'dermo' wool is included in AAAM lines, deliberately or by accident, and if detected it is penalised by buyers, depending on the severity. The wool is usually sold separately and is penalised for the presence of scab and because the wool is often sold in small lots.

During the 1982-83 Albany wool selling season, the price received for wool sold as 'dermo-affected' was compared with that received for other fleece lines from the same flocks on 12 properties. The average price penalty for 'dermo-affected' wool was 47c/kg (range 7 to 92c/kg).

Some small lots containing 'dermo' wool were interlotted. Those farmers selling coarser wool were penalised less for their 'dermo-affected' wool than those selling finer wool.

The major costs of 'dermo' are those associated with blowfly strike, particularly body strike, and the reduced sale price of affected wool. However, several other costs are incurred by its presence in the flock. These additional costs are:

Lamb losses. In the high rainfall zones (more than 550 mm a year) young lambs can become severely affected and die as a result of uncomplicated dermatophilosis.

Production losses. Evidence suggests that 'dermo-affected' sheep are lighter and grow less wool (including the extra weight of the scab). This is being further investigated.

Cost of treatment. Antibiotics at 60 to 100 cents per dose are used to treat affected sheep before shearing on many properties. A variety of sprays and dipping additives are also used in an attempt to control dermatophilosis. Some additives such as copper sulphate further damage wool fibres.

Culling losses. On most farms affected sheep are culled and suffer heavy price discounts at saleyards. Price penalties of $3.00 to $9.00 have been recorded for 'dermo-affected' sheep compared with those received for sheep culled for other reasons. On many farms affected sheep are slaughtered because they are not considered saleable.

Shearing. Shearers are reluctant to shear sheep with active lesions. Apart from damage to combs and cutters, shearing results in severe cuts and skin damage to sheep.

Tanning industry losses. Severely affected skins represent a loss to the tanning industry. At the abattoir it is estimated that 1.8 per cent of skins are downgraded or rejected because of 'dermo'. This is the number of sheep that reach the abattoir after buyers have rejected obviously affected animals.

Opportunity costs. Some sheep farmers in the high rainfall zone have been forced to turn to alternative, less potentially profitable strategies such as cattle and fat lambs because of dermatophilosis in breeding Merino flocks.
MYTH No. 4:
**Fleece-rot research findings are directly transferable to the problem of 'dermo'**

Dermatophilosis and fleece rot are different fleece diseases.

Dermatophilosis is the more complicated disease. It is influenced by season, management practices, transmission methods and fleece and skin factors. Lesions are more widely distributed over the sheep's body.

Fleece rot develops after prolonged wetting of the skin, most commonly on areas where body faults allow pooling of water. Wetting causes an inflammation of the skin and leakage of serous exudate which mats wool fibres together. Fleece-rot appears as a band of coloured exudate binding the fibres together. Unlike 'dermo', fleece-rot does not produce chronic lesions. Fleece rot lesions develop in sheep of any age and often recur in sheep previously affected.

On several farms it was noted that dermatophilosis was still present despite successful selection for resistance to fleece rot. This suggested that sheep factors which encourage 'dermo' may differ from those which encourage fleece rot. It has also been observed that dermatophilosis and fleece rot occur independently and that the distribution of lesions on individual sheep differs, even when both conditions are present on the same sheep.

MYTH No. 5:
**Dipping can prevent 'dermo'**

Dipping aggravates 'dermo', but some dipping chemicals aggravate 'dermo' less than others. Dipping provides the necessary moisture for transmitting the bacteria, which causes 'dermo', from sheep to sheep. The organism is not transmitted in the dip itself, but wetting causes the release of motile (free-swimming) zoospores from the scab and these are quickly spread by close contact of the sheep after dipping.

Trials at the Department of Agriculture’s Mt Barker Research Station showed that dipping sheep in water alone or a water-diazinon mix gave the worst results, while dipping in a water-arsenic mix resulted in more rapid lifting and healing of the lesions.

Dips containing additives such as zinc sulphate have not been shown to be more effective than not dipping sheep.

In most cases, the effects of pour-on dips on 'dermo' are similar to those for not dipping because the pour-on treatments avoid overall wetting. However, in a small number of cases, one pour-on formulation aggravated the 'dermo' lesion along the application line.

MYTH No. 6:
**Other treatments are effective**

Treatments other than antibiotics which have been used for 'dermo-affected' sheep include diesel oil, solutions of zinc sulphate or copper sulphate, a milk-oil fluid and dieldrin. There is no evidence that these treatments are effective.

Treatments for 'dermo' in the absence of untreated control sheep can be very misleading because most animals cure themselves and most 'dermo' lesions heal before the next shearing. None of these treatments can be recommended and some would be harmful to sheep or their wool.

MYTH No. 7:
**The incidence of 'dermo' can be reduced substantially by culling**

This myth is perpetuated by observations that, following the culling of affected sheep, there is very little 'dermo' in the same mob next year. Lesions on affected sheep would have lifted and there would have been little 'dermo' in the flock in the absence of culling. Farmers should examine new season's lambs or weaners to see if the incidence of 'dermo' is falling.

Dermatophilosis is strongly influenced by season and management practices, therefore an apparent reduction in incidence should be viewed with caution.

It is probable that progress can be achieved by selecting against sheep showing signs of the disease. However, genetic progress will be slow unless rams are culled as well as ewes. If rams come from a source that is not exposed to infection or where selection against the disease is not practised, progress will be slower.

Genetic progress can be made by either direct or indirect selection.

With direct selection, the presence or absence of a particular characteristic is used. In this case, 'dermo-affected' sheep would be culled.

Indirect selection means concentrating on another factor which is likely to be associated with predisposing sheep to the disease. Unfortunately, there are no known indirect criteria which can be used to select against 'dermo', unlike that for fleece rot.

Some of the indirect criteria which researchers have agreed are valuable for selecting for resistance to fleece rot are fibre fineness, distribution, fleece colour and conformational faults such as 'devil's grip'. There are also indications—not universally accepted—that the amount of wax and suint (water-soluble component) in the fleece, and suint pH, could be important.