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HOW TO CONTROL FLYSTRIKE IN SHEEP

By H. E. FELS, Adviser, Sheep and Wool Branch.

FLYSTRIKE affects incomes and efficiency because a large part of the work done on sheep farms is to prevent or treat it, and because it kills sheep and reduces the amount and quality of production.

In an experimental comparison of struck and unstruck sheep over 1 year, sheep that were struck and treated for flystrike—

• weighed 3 to 5 lb. lighter at shearing time,
• produced 5 to 20 oz. less wool,
• had 15 to 44 per cent. more tender fleeces,
• produced 17 per cent. less lambs marked.

From a humanitarian viewpoint, preventing flystrike is important because it is a cruel disease.

Most control methods aim to avoid having susceptible sheep.

Susceptible sheep
A small proportion of strikes start on wounds, especially infected ones, but most strikes start on patches of skin that have been moist or wet and have become inflamed and to some extent "scalded". Blowflies lay their eggs on these patches and skin secretions and other liquid protein provide food for the young maggots until they are big enough to eat through the skin.

Wrinkles
The wettest patches of skin are usually at the base of small wrinkles. Figure 1 shows that wrinkly sheep are far more susceptible to flystrike.

Wrinkles can be minimised by breeding. In addition, breech skin can be stretched tight by mulesing.

Dags and urine stain
Woolly crutches collect wet faeces and urine, especially if there are crutch wrinkles and if the bare skin at the breech has not been stretched by mulesing. Once dirty, more faeces and urine are collected and patches of skin are kept continuously wet.

Shearing or crutching removes dags and moist wool. The skin is then ventilated and dries out, making it less attractive to flies. On dry skin there is no liquid protein which newly-hatched maggots need for food, and on exposed skin, newly-hatched maggots dry out and die.

Mulesing stretches the natural area of bare skin near the anus and vulva, giving a much larger bare area that stays smooth, clean and free of wool and dags.

Sheep on highly-digestible green feed produce sloppy faeces. This is inevitable but sheep scour even more when they have changes of feed, especially when moved from a heavily-grazed paddock onto lush feed. Therefore setstocking helps keep sheep clean.

Figure 1.—Effect of skin folds on flystrike.
Control methods

Tailing lambs

Experiments between 1938 and 1942 showed that tails cut off beyond the tip of the vulva reduced flystrike (see Table below).

Since 1943 the standard recommendation has been to cut tails level with the tip of the vulva or slightly longer.

This recommendation applies to unmulesed sheep or to sheep that are mulesed conventionally and tailstripped.

With radical mulesing, skin is cut off above the tail as well, so the tail is bare and bare skin extends an inch or so above the base of the tail. As Figure 3 shows, if sheep are radically mulesed and are crutched once a year, short tails do not cause flystrike.

A standard recommendation at present is to mules lambs radically at marking time and cut the tails fairly short so the wounds will heal faster. However, in big lambs (older than about 8 weeks) the tail should be cut longer where the tail and its artery are narrower, to reduce blood loss and surgical shock.

The bare skin under the tail should be left on the lamb. The knife blade should be used to push the bare skin towards the lamb before cutting the tail off. This flap of bare skin stretches up and heals over the base of the tail.

Shearing

In areas with a serious risk of bodystrike it is desirable to shear in early spring, before the flywave. Other factors affect choice of shearing time (see article on control programmes).

Crutching

Woolly sheep are normally crutched just before the spring flywave.

Sheep shorn in early spring are usually crutched about March, before the autumn flywave.

Many farmers are trying to avoid or minimise crutching. This depends on management to avoid dagginess (radical mulesing and setstocking).

In the wheatbelt, radical mulesing, autumn shearing and jetting early in the spring flywave have worked well. This system has not worked well in wetter areas.

With spring shearing, uncrutched sheep usually carry soft dags which rub off on other sheep and on the shearing board.

Some farmers avoid crutching by cleaning up sheep with handshears while they stand in a race. With radically-mulesed sheep these farmers do a neat light crutching job at speeds of about 300 sheep per man-day.

Other farmers are developing systems for race-crutching using handpieces. Some plan to clean up dirty sheep and some aim to crutch whole flocks. The job is reasonably easy with radically-mulesed sheep.

This would leave wigging and shearing around the pizzle as the remaining reasons for routine conventional crutching.

### Experiment 1

<table>
<thead>
<tr>
<th></th>
<th>Short tails (tails level with buttocks)</th>
<th>Medium tails (level with the middle of the vulva)</th>
<th>Long tails (beyond the tip of the vulva)</th>
</tr>
</thead>
<tbody>
<tr>
<td>In 1st flywave</td>
<td>61</td>
<td>56</td>
<td>32</td>
</tr>
<tr>
<td>In 2nd flywave</td>
<td>51</td>
<td>33</td>
<td>14</td>
</tr>
</tbody>
</table>

### Experiment 2

<table>
<thead>
<tr>
<th>Tails</th>
<th>Short</th>
<th>Medium</th>
<th>Long</th>
<th>Not docked*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>90</td>
<td>61</td>
<td>25</td>
<td>41</td>
</tr>
</tbody>
</table>

* Natural length tails become extremely daggy

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**RECOMMENDED TAIL LENGTHS**

If not mulesed—cut tail level with tip of vulva or slightly longer.

If conventionally mulesed—cut tail level with tip of vulva or slightly longer.

If radically mulesed—tail shorter to hasten curing.
In an experiment* at Mt. Barker Research Station the "dee operation", to drop the pizzle and sheath, reduced urine stain. This may make it unnecessary to crutch around the pizzle. Note that shearers should not be given mixed mobs of pizzle-dropped wethers and normal wethers.

The mules operation

The mules operation is simple skin surgery. There is little blood loss and very little surgical shock. Loose skin is removed from the rump so the remaining skin is stretched and wrinkles are smoothed out.

Contract mulesing costs about as much as a single crutching. However the effects last the lifetime of the sheep.

Figure 2 shows how mulesing helps keep sheep clean. Figure 3 shows how effectively mulesing reduces flystrike. Radical mulesing is even more effective than conventional mulesing.

Mulesing lambs at marking time protects them through their first flywave and avoids the work of catching and holding them for mulesing later in life. Don't mules lambs that will be sold for slaughter within a few months.

The February Journal of Agriculture (Bulletin 3784) described how to do the mules operation.

Avoiding fleece rot

In susceptible sheep, 4 in. of rain in 8 days usually causes fleece rot. The map (Figure 4) shows the risk of fleece rot in different parts of W.A.

The scalded skin and skin secretions associated with fleece rot allow bodystrike. Risk of uncontrolled bodystrike outbreaks due to fleece rot is an important problem in the higher rainfall areas.

The easy way to avoid fleece rot is to use resistant sheep. Resistance is inherited. Studs in bad fleece rot areas would cull susceptible sheep and so breed resistant rams.

There should be opportunities for more merino studs in the severe fleece rot areas of W.A.

Avoiding mycotic dermatitis

Mycotic dermatitis is common on the face and ears of sheep. Chronic infection of the wool-bearing skin is less common but causes "lumpy wool". (See July Journal of Agriculture, Bulletin 3819.)

* Experiment conducted by I. G. Ralph.
Recommendations include—
be sure lambs and young sheep are completely dry when shorn;
dip within a fortnight of shearing, in fine weather, to avoid dip scald.

Treating wounds
Lambs may be marked and mulesed just before the spring flywave. If so, the wounds should be dusted with an effective insecticide powder.

Note that if rubber rings are used for castration and tailing, the “wound” becomes attractive and susceptible several weeks later.

Jetting
Jetting depends on getting insecticide on all moist, attractive areas of skin, so maggots die before they eat through the skin.

Jetting does not work well if the maggots are resistant to the particular insecticide or if the insecticide does not reach all the moist, attractive skin.

A fast method for “jetting” in emergencies is to spray sheep in a sheep-dip for 30 to 45 seconds. Spray nozzles could be finer than normal and bottom sprays could be turned off. If the drainage fluid is dirty it need not be recirculated.

In fleece rot weather, jetting with ineffective insecticide may cause as much trouble as it prevents.

Setstocking
Setstocking helps keep sheep clean. On a setstocked farm all paddocks are grazed fairly evenly, with a flock on each paddock to suit the particular paddock for the whole season.

March or April, before the season opens, is a suitable time to decide which stock to put into which paddocks. The stock can then be resorted into suitable groups if necessary. Fine adjustments can be made several months later when it becomes clear that some paddocks are being grazed too heavily and others too lightly.

Farmers will usually run wethers at higher grazing pressures and young growing sheep and sheep that will be sold later in the year at lower grazing pressures.

Wethers, and ewes lambing in July or August, can help the crop programme in April, May and perhaps early June by overgrazing paddocks to be cropped. When the crop is sown they can be moved to their own paddocks for the rest of the season.

Treating struck sheep
The standard recommendation is to clip or shear the wool from the struck area and all surrounding stained areas and to treat the area with a non-irritant, effective insecticide mixture.

Prompt treatment of struck sheep might restrict the development of flywaves.

Until the late 1950s, when blowflies became resistant to dieldrin, jetting struck areas with dieldrin was an effective treatment even if the wool was not removed.

As blowflies become more resistant to current insecticides, jetting is likely to be followed by re-strike soon afterwards unless wool is removed to allow the affected area to dry out.

Flystrike control programmes
Flystrike control depends on avoiding patches of moist, susceptible skin. Susceptible patches are avoided by shearing and crutching, by avoiding wrinkly sheep, by mulesing to further stretch the breech skin and enlarge the bare area, by setstocking, by avoiding fleecerot and lumpy wool and, when effective insecticides are available, by jetting.

These control methods are combined into 12 workable programmes in the following article, “Flystrike control programmes”.

Figure 4.—Expected incidence of fleecerot.
(Compiled by R. J. Suiter.)