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BLOWFLY STRIKE

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BLOWFLY strike in sheep costs Australian flock-owners millions of pounds every year in sheep mortalities, reduced lambing percentages, restricted growth, lowered wool returns, loss of time and the cost of dressings for struck sheep.

These losses could be avoided—or at least substantially reduced—if all sheep-owners would take advantage of the proved methods of control that are available to them. And this does not mean merely sporadic attempts at blowfly control—it means incorporating these tried and tested methods into their systems of sheep husbandry—making them part of the normal flock routine, year in and year out.

In dealing with blowfly strike in sheep, while a knowledge of the habits of blowflies is helpful, it is more important to know why sheep are attractive to blowflies, which class of sheep are more susceptible to blowfly strike, why they are susceptible and what measures may be taken to reduce that susceptibility. This together with a knowledge of when conditions may be anticipated that will be favourable to the propagation of blowflies, will enable the sheep-owner to obtain the best results from any measures taken to protect his sheep.

SHEEP BLOWFLIES

There are two main types of sheep blowfly—the so-called “primary flies” which strike the sheep in the first instance, and the “secondary flies” which follow them and strike the suppurating wounds caused by the primary flies.

The chief culprit in the primary class is the green blowfly (Lucilia cuprina) which is responsible for 90 per cent. of the initial strikes. The large brown and the lesser brown blowflies are also in the primary class but any successful measures against the green blowfly will be equally effective against other primary flies.

Although the secondary flies do not initiate the strikes, they are responsible for serious damage. Their larvae or maggots are bigger and more powerful than those of the primary flies and will attack and devour or crowd out the smaller larvae and take over the strike area entirely. The large hairy maggots of the secondary flies have powerful jaws that tear into the sheep’s flesh and produce infections which often result in the animal’s death.

LIFE-CYCLE

The life-cycles of all types of blowfly are fairly similar, and the diagram (Fig. 1) shows that this can be completed in 17 days where conditions of moisture and temperatures are favourable.
Fig. 2.—Correct tailing of lambs. Note that the knife-edge is level with the tip of the vulva.

Such conditions occur mainly during the spring and autumn months and are particularly prevalent in years when green feed is abundant.

From the egg to an egg-laying adult in 17 days means that generation after generation can follow rapidly, when conditions are ideal. The female primary fly can lay 2,000 or more eggs in her lifetime of 30 to 60 days so that a huge blowfly population can spring up in a short time.

**HOW STRIKES OCCUR**

Blowflies are attracted by moisture and by the odour arising from wool and skin which is constantly in a moist condition. Where moisture is retained in the wool, whether it be from rain, urine, heavy dews or sweat, a certain degree of “scalding” may take place.

The skin becomes inflamed and the exudate from the inflamed area adds to the moist conditions and gives off odours attractive to the primary flies. The flies lay their eggs and the larvae hatch out and travel through the wool to the skin to feed. As they grow and attack the surrounding tissues, so the infestation spreads.

**SYMPTOMS OF BLOWFLY STRIKE**

Badly-struck sheep suffer intense irritation and will often bite at the struck area in their attempts to gain some relief.

They usually separate from the flock, cease feeding and generally exhibit signs of uneasiness and discomfort.

If struck in the crutch—the most common site of blowfly strike—they will be seen stamping their feet and wriggling their tails.

In an extensive strike, the wool falls away leaving a raw surface in which bacterial infection often occurs and may cause death.

**TYPES OF STRIKE**

Crutch and tail strikes in ewes account for about 80 per cent. of all strikes occurring in sheep.

Fig. 3.—Correctly-crutched sheep. Note that the wool is shorn from the hocks and lower legs with sufficient width at the buttocks. The edge of the wool has been bevelled.
Pizzle strike in wethers and rams, also horn strike in rams is not unusual.

In years of excessive rainfall—particularly during warm weather when conditions are favourable for the occurrence of fleece rot—cases of body strike could occur if blowflies were plentiful.

**SUSCEPTIBILITY**

Most woolgrowers are aware that flies are not active all the year round, and that certain types of sheep are more susceptible to blowfly strike than others.

All Merino sheep are more or less susceptible, and in bad fly conditions even the plainest of Merino flocks can suffer a heavy incidence of fly strike, particularly in those years when green feed is in abundance and continued wetting of the crutch occurs.

Fig. 4.—"Ringing" the pizzle of wethers and rams will help to prevent blowfly strike.

**METHODS OF CONTROL**

In many Merino flocks there are some sheep that carry an excessive degree of wrinkliness in the breech area which renders them most susceptible to fly strike. These are likely to be poor wool-producers that would be better culled from the flock. This does not mean that all sheep showing development should be culled, but sheep that are obviously of poor type carrying excessive development and very short, heavy-conditioned wool are attractive to blowflies.

Such animals would most likely be the first sheep in the flock to be struck, forming the early breeding ground for subsequent generations of flies, which could rapidly increase and spread through the flock. Culling this type of sheep from the flock will assist in keeping the fly population down, and help in building up the wool average.

**LAMB MARKING**

The first step in blowfly control is correct tailing of lambs at marking time. Frequently one sees lambs or grown sheep with tails left too long, or cut too short, in fact there are many with no tails at all. Correct docking of the tail provides the sheep with a means of cleanliness, and tends to part the wool on either side of the vulva giving a better channel for urine. It also allows a brushing action of the tail that assists in keeping the bare area surrounding the vulva free from soiling. Tails should be docked at a length which allows the cut end of the tail to just cover the tip of the vulva. When the knife is used for tailing, as much bare skin as possible should be left on the underside of the tail which, on healing, provides a cleaner tail with a wool-free end.

**CRUTCHING**

At least two crutchings a year are an essential part of sheep husbandry in the farming areas to reduce soiling of the breech, and wool damage by staining and rubbing. Crutching also affords protection against fly strike by allowing free drainage and encouraging dryness of the crutch area, but to be effective it needs to be carried out ahead of anticipated fly activity. At best, only six or seven weeks' protection may be expected from crutching, as the regrowth of wool will again increase the sheep's susceptibility to blowfly strike.
RINGING

At crutching time, ringing the pizzle of wethers and rams will greatly assist in keeping these parts free of fly strike.

SHEARING

Freshly-shorn sheep are not very susceptible to fly strike unless shear cuts and wounds have become infected with bacteria during shearing, by contamination picked up in dirty yards, or by dipping off-shears in contaminated dipping solution. Such infections may be lessened by providing clean conditions at shearing and dipping time. Though protection may be secured through shearing, it is not always possible to coincide shearing with expected fly activity, particularly where growers are dependent on outside labour.

MULESING OF SHEEP

The Mules operation originated by the late J. H. W. Mules of South Australia, and modified by the C.S.I.R.O. and other research workers, is by far the most efficient of all methods of preventing blowfly strike, and is strongly recommended by the C.S.I.R.O. and Departments of Agriculture throughout Australia. It has gained wide popularity among wool-growers, both agricultural and pastoral, throughout the Commonwealth. The function of the Mules operation is to extend or enlarge the wool-free area of skin surrounding the genital organs of ewes, which assists in keeping those parts of the sheep drier and freer from soiling, and less attractive to primary green blowflies.

When sheep are clean and dry in the crutch, flies cannot start strike and are unable to propagate. This factor in itself destroys the chance of fly waves building up on properties where flocks are Mulesed, and accounts largely for the very low incidence of blowfly strike in Mulesed sheep, often less than 2 per cent. The Mules operation not only confers a high degree of immunity upon the sheep, but assists in preventing primary blowflies from increasing in numbers. Where primary blowflies are unable to initiate strikes, the secondary or “hairy maggot” blowflies as they are often called, are greatly restricted in their activities.

Mulesing requires no special skill, and with a little practice can be done efficiently by any sheepman. It consists of the removal of two crescent-shaped pieces of skin from the crutch area of ewes, one piece from each side of the vulva. With the sheep held in position, start about one inch below the butt of the tail and, skirting the bare skin surrounding the vulva, complete the cut by tapering off to a point just above the hamstring. When the two cuts are completed, the widest part of the cuts should be level with the vulva, leaving a narrow bridge of skin about one to one and half inches wide just above the bare area. If the cuts are made correctly, the action of healing draws the bare skin out to its maximum width, greatly enlarging that area. This enlarged bare area surrounding the vulva assists ewes to remain clean and dry in the crutch, and greatly reduces their susceptibility to blowfly strike.

TAILSTRIPPING

The tailstripping of sheep, or the removal of the wool-bearing skin on the tail in such a manner that healing draws the under-surface bare skin around the tail, is an effective method of reducing tail strike. It can be applied to wethers as well as ewes, and is done in conjunction with Mulesing. The Mulesing and tailstripping of sheep...
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is a relatively simple procedure in which efficiency and speed are acquired with practice. It takes only one minute or less to do correctly. Sheep of any age can be treated without harmful effect, and heal very quickly. Even sheep in low condition appear to suffer no ill effects. Mulesing has the advantage of being a permanent measure of protection, and obviously is best done in the early life of the sheep.

Although it is a simple and easy treatment to perform, Mulesing is best learnt from a skilled operator by demonstration. Contact your local Agricultural Adviser or get in touch with the Officer-in-Charge, Sheep and Wool Section, Department of Agriculture, Perth, where officers are available to instruct in Mulesing and tail-stripping of sheep for blowfly control.

AGE TO MULES AND TAILSTRIP SHEEP

While sheep of all ages can be Mulesed and tailstripped successfully, it is best left to the individual grower to decide whether to treat his sheep as lambs, or at weaner age, according to what best suits his system of sheep management. Treating them as lambs is rather more tedious, but has the advantage of gaining earlier protection; but unless the treatment is carried out efficiently, some may have to be re-Mulesed as weaners. The best age to carry out the Mules and tailstrip operation is at weaner age, when sheep are showing development and at a time when they are freshly shorn or crutched, as it is difficult to Mules sheep carrying more than two weeks’ wool in the crutch area.

Sheep management routine varies with each set of circumstances, and farm management where mustering problems are simple, differs from station routine, where sheep may only be mustered once or twice a year, and in some cases, can only be trapped on water during the summer months, and then be held for only a limited time, owing to feed scarcity. Under such varying conditions, any plan to make Mules and tailstripping routine practice would have to be evolved by the individual grower with due regard to the conditions and problems peculiar to his own property.

The best plan to follow is to Mules and tailstrip the weaner flock each year, either off-shears or at crutching time, provided flies are not prevalent and active, such as in the autumn and spring. In this way, over a few years, the whole flock will have become treated with very little extra work as one Mules operator can treat many sheep in a day.

Under pastoral conditions the Mulesing and tailstripping of sheep is without doubt the best protection that can be conferred
on sheep. While of necessity a little extra work is involved, no great difficulty exists in carrying out this treatment.

This is already proved by the number of station properties which are achieving remarkable success by Mulesing and tailstripping, either off-shears if blowflies are not prevalent, on lambs at marking time, or at a midseason crutching.

**EQUIPMENT REQUIRED**

The equipment required to carry out the Mules and tailstrip operation on sheep, is a sharp pair of ordinary short dagging shears, an oilstone of medium texture, a container for antiseptic, and a small holding crush, similar to the one illustrated, which enables the catcher to easily control the sheep.

The holding crush can be made on the farm or purchased ready made for a small sum.

**JETTING**

Jetting is the application of a poisonous solution to the wool and skin of sheep. This kills maggots as they emerge and so prevents the strike from spreading.

With the introduction on the market of insecticides such as dieldrin, aldrin and similar chlorinated hydrocarbons with low volatility, protection from fly strike for lengthy periods may be gained by jetting sheep with these chemicals. To be effective jetting must be carried out in a thorough manner, saturating the wool right down to the skin.

The facilities required to jet sheep are an up to date jetting plant capable of good delivery at pressures of 75 to 120 lb. per square inch, and a race for holding sheep, preferably one that is raised above ground level. Although not essential, a raised race speeds up the job and is easier
on the operator. There are several types of small jetting plants on the market that are specially made for the job. Ordinary spray plants will not give proper penetration and are unsuitable. Multi-jet nozzles are better in use than single jets, as they expedite the work in hand.

A good system to follow when jetting sheep in the race is to have them all facing in one direction, and working from the rear, turn each sheep back as it is jetted. This allows the operator full freedom of action.

To jet sheep properly, the first approach with the jet should be up under the tail which causes the sheep to crouch slightly. Then using the free hand to brush the wool open, follow with the jet, first up one side of the crutch and then up the opposite side, finishing over the tail.

With a raised race, the operator works from the outside. A rubber glove should be used on the free hand, and protective clothing used in addition, owing to toxicity of the spraying solutions.

The lengthy period of protection these chemicals afford, is due to low volatilisation, and in this respect will not prevent flies from laying their eggs, but is toxic to the larvae hatched, and although it may take some hours to kill, is positive in its action. The number of sheep that can be jetted in a given time, will depend upon the facilities available and the aptitude of the operator, however, given reasonably good facilities many sheep can be jetted daily.

The recommended concentration, using dieldrin is 0.5 per cent. treating about five sheep to the gallon. Lower concentrations will shorten the period of protection, but it does not appear that higher concentrations will give longer protection.

Jetting is a sound measure of protection and should supplement Mulesing and tail-stripping, which is the basic fly control, whenever necessary.

Horn strike in rams and pizzle strike may be controlled by thoroughly saturating the wool around these parts with the jetting fluid.

THE DRESSING OF STRUCK SHEEP

During periods of fly activity, frequent inspections of the flock should be made, and any struck sheep given immediate treatment.

In addition to aiding the sheep, this helps in keeping the blowflies down by destroying the maggots before they are able to leave the wound and pupate in the ground, emerging later as adult flies.

To ensure the complete destruction of all maggots, the wool should be shorn from the struck areas and from the skin.
immediately surrounding them so that no pockets of infection are left unexposed. This should be done on a canvas sheet or tarpaulin, and the maggots destroyed immediately. The wound can then be treated with a suitable dressing that will destroy any remaining larva, and at the same time, assist the wound to heal.

Many kinds of dressings are used in treating fly struck sheep. Some of these are irritant in their action and harmful to the already damaged tissues in the wound.

Several dressings are made up as proprietary lines from a formula released by the C.S.I.R.O. These in the past have been found to be very successful. Any dressing used should be soothing to the wound and should assist in healing, as well as destroy the maggots in the wound.

Dressings should be applied over the whole strike area and well rubbed in to ensure good penetration.

**POINTS TO REMEMBER**

1. When tailing lambs make sure the cut tip of tail just covers the tip of the vulva.

2. The Mules operation and tailstripping of sheep is basic blowfly control—properly-treated sheep are permanently protected.
3. Do not Mules and tailstrip sheep when flies are prevalent and very active.
4. Mulesing and tailstripping enables sheep to remain drier in the crutch area.
5. Strike cannot occur in the absence of moisture in the wool.
6. When blowflies cannot start strike, flywaves cannot build up.
7. Sheep of all ages can be Mulesed without harmful effects.
8. The best age to Mules sheep is as weaners.
9. Jetting should supplement Mulesing and tailstripping when required.
10. Jetting with dieldrin at 0.5 per cent. concentration should give up to ten weeks protection from flystrike. The jetting plant is a good form of insurance on the farm.

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