

INVESTIGATION OF APPARENT BREAKDOWNS IN FLY CONTROL

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The last 4 or 5 years has seen an appreciable increase in the incidence and severity of flystrike. Areas where only very cursory protective measures were needed have suddenly found this approach to be completely unsatisfactory. In areas where flystrike has traditionally been a problem farmers have now found the length and severity of the challenge has increased dramatically. Against this background of increased fly pressure the control methods used in the past have often been found to be unsatisfactory and farmers have a problem they perceive cannot be solved. The chemicals were the first to be blamed for this situation but where full investigations have been carried out, generally, other causes have been found to be more important.

The arrival of flystrike as a major problem to the sheep farmer has also highlighted another area of concern. Traditionally farmers have relied on their local Veterinarian to investigate and solve any important animal health problems. However, when confronted with questions relating to fly control and dipping many vets have been uncertain how best to investigate the situation. In the past, control of ectoparasites has largely been the province of merchants and it is only now, somewhat reluctantly in some cases, that Veterinarians are becoming involved.

It is important, for the farmer and the Veterinarian, that this opportunity is taken and fully exploited. To best achieve this the practitioner must have a clear structured approach to the investigation of any problem involving fly control. It is important that a simplistic superficial approach is avoided and that any judgements on the causes of the problem are made only after an exhaustive, in depth investigation has taken place.

The investigation of the control of flystrike is an opportunity for a Veterinarian to get out onto a farm and sell his skills. Thus a very thorough approach involving the collection of all the necessary data relating to the fly control program on a particular farm, is extremely important. When the vet leaves the farm the information that has been collected must be sufficient to allow the drawing up of a detailed and practically appropriate control program which will solve the problem. The investigation therefore involves 3 main steps:

1. Detail the control methods currently in use
2. Pinpoint the areas of weakness in these.
3. Formulate a fly control program which will correct the deficiencies identified and solve the problem. The production and use, by the Veterinarian, of a questionnaire tailor-made for a particular practice or area is a useful first part of this approach. An example of a suitable questionnaire is included in the appendix.

Another very important component in this investigation is a clear understanding of all the potential problems associated with the control of flystrike. As this is a large topic on its own, the present discussion will be confined to a few brief comments on the most frequently encountered problems.

1. Saturation

There is a myth passed on from farmer to farmer as factual dogma that for all breeds, wool lengths, chemicals and shower types, 3 minutes in the shower will give the required protection. Along with the "3 minute rule" there is the

similarly misleading "2 litre rule" which states that, again independent of breed, wool length, application technique and chemical, sheep will be adequately saturated when 2 litres is used per animal dipped. It should be noted that this volume includes dipwash discarded during cleaning. In the past this approach was often effective, simply because fly challenges were low and short lived. Under today's levels of fly pressure the full potential of chemical control is only achieved after sheep are exposed in the shower for the time (timed with a watch) required to wet the majority of them, down to the skin.

2. Dip Wash Contamination

The effect of dipwash contamination will depend on the type of chemical being applied. The organophosphate dips are believed to be markedly affected by the level of contamination of the dipwash as the insecticide in these products strips out onto dirt and faecal material and therefore in dirty dipwash can rapidly become unavailable for uptake into the wool fibre. The other effect of contamination, and one important for all fly dips, is the enhancing effect that dipwash contaminated by urine and faecal material has on the attractiveness of the sheep to the fly. The factors affecting the level of dip wash contamination can be listed as

(a) Cleaning the sump

It continues to be a common practice that the frequency with which the sump is cleaned out is more closely related to the need to stop for lunch and dinner than the level of contamination that has built up during dipping. Thus, sumps are often cleaned out only once or twice a day. The frequently published and emphasised statement by dip manufacturers that the sump should be cleaned out at least after 1 sheep has been dipped for every 2 litres of dip wash initially prepared in the sump is often ignored by the majority of farmers.

(b) Sump size

It is generally agreed that sumps should have a capacity of at least 1000 litres and preferably 1500-2000 litres. The larger the sump the less frequent is the need for cleaning.

(c) Emptying out

The holding of sheep to be dipped in sparsely grassed holding paddocks overnight before dipping reduces the faecal output and therefore dipwash contamination during dipping the next day.

(d) Drainage time

The aim should be to achieve zero drainage time. The dip chemical saved during extended drainage is not worth the concomitant contaminated dipwash returned to the sump. With stripping dips the chemical saved because of prolonged drainage times is negligible as most of the insecticide strips out onto dirt, faeces, concrete etc. and therefore is not returned to the sump.

(e) Presence of dags

These add to the contamination during dipping and, by impeding the exposure to dipwash of the crutch, reduce the uptake of insecticide into the wool in this area. The aim is to remove the dags with the minimum removal of wool before dipping. Exuberant crutching is contraindicated as this removes the wool ultimately required for retention of insecticide.

(f) Provision of grating

Grating in the race leading to the dip helps remove dirt and faeces adhering to the feet which can be a significant source of dipwash contamination.

3. Unrealistic Expectations

Many farmers, based on past experiences and 'folklore' passed on from their forebears believe that any chemical applied in the *usual* manner will give a season's protection against flystrike. Unfortunately with the level and duration of fly challenge being experienced in some areas in the last few years, no chemical or technique can realistically be expected to achieve this. However, using the present chemicals effectively it should certainly, in most situations, be possible to greatly improve the results currently being achieved on a large number of farms.

4. Timing

The timing of the treatments to coincide with the challenge is obviously important but not necessarily widely understood by farmers. In a survey carried out by MAF Wallaceville (Allan Heath pers comm) it was concluded that 63% of farmers are likely to have unprotected sheep at the time of the onset of the fly season. The timing of dipping to coincide with appropriate wool lengths is also an area where management changes could increase the effectiveness of a fly control programme.

5. Tolerance/Resistance

Tolerance, which manifests as the ability of a fly to withstand higher than expected levels of insecticide, is widespread in Australia where the major species causing flystrike is *Lucilia cuprina*. This species was recently identified in New Zealand and local worries have been raised about this new immigrant and its susceptibility to organophosphate based dips. At this stage no scientific evidence has been produced substantiating these worries. However MAF Wallaceville will be undertaking appropriate studies in this area.

The final component of any investigation of a fly control program is the attitude adopted by the Veterinarian before he starts the project. It is important that no preconceived ideas interfere with the thoroughness or the direction the investigation takes. It is very likely that this investigation will uncover a number of factors causing the problem, some of which may be problems in their own right which will need specific advice eg. poor fly control seen in a flock of persistently daggy lambs due to low levels of endoparasite control because of resistance or inappropriate drenching frequency. The solution to these other problems will provide further opportunities for veterinary input.

The specific steps involved in an investigation can best be appreciated after carefully studying the appended questionnaire. Note that mention of a visit timed to coincide with a subsequent dipping is alluded to. This is particularly important as frequently, no matter how searching the history taking, seemingly small deficiencies in technique, in the absence of first hand viewing, may be overlooked and the resultant advice, without this information, may not fully correct the problem being investigated.

The advent of flystrike becoming a major production limiting disease is a real opportunity for the veterinarian to get onto the farm and become involved in formulating a rational integrated practically feasible solution. This situation provides an ideal practice building opportunity but it is very important that the advice given is based on a significant depth of knowledge. It is therefore incumbent on the Veterinarian, before becoming involved, to make a conscious effort to become fully informed and knowledgeable about dips, dipping and blowfly control. Any advice given must be based on this knowledge and the results of a thorough investigation of each case of apparent breakdown in fly control.

PRACTICE NAME:

FLY STRIKE CONTROL INVESTIGATION FORM

GENERAL

Farmer's Name:

Address:

Phone No:

Farm Size:

Topography:

Sheep Breed:

Flock Size:	MA Ewes:
	2 th :
	Hoggets:
	Lambs:

FARM MANAGEMENT FACTORS

Labour:

Usual Shearing Dates:	MA Ewes:
	2 th :
	Hoggets:
	Lambs:

Drenching Programme:

Other relevant Animal Health factors:

Usual dipping dates:

Usual dipping techniques: Shower
Plunge
Jetting Wand
"Gorse" Gun
Other

Product(s) used:

What classes of stock are treated and when?

THE FLY PROBLEM - Historical Data

How bad is the flystrike on this farm:

Invariably severe
Usually severe
Moderate
Intermittent

What level of stock loss can be attributed to flystrike?

During what months is flystrike a problem?

What treatment procedures and chemicals have been used in the past?

What length of protection have they given?

How has the severity of the problem changed in the last few years?

- longer season
 - shorter protection being achieved
 - strike lesions larger and animal losses higher
 - more back strike
 - more crutch strike
-

THE PRESENT PROBLEM

General

Treatment Date:

Age and sex of treated sheep:

If involves unshorn lambs - lambing date:

If involves shorn animals - last shearing date:

Wool length at the time of treatment (weeks):

Number of sheep dipped:

Dip product applied:

Amount and timing of any rainfall in the immediate post dipping period:

THE DIPPING PROCEDURE

Method Used: Shower:
 Plunge:
 Jetting Wand:
 "Gorse" Gun:
 Other:

If a shower/plunge was used:

Time spent in the shower/plunge (minutes):

How many animals were treated that day?

Was a timing device used?

Was the level of saturation checked (ie. by wool parting)?

Volume of the sump/supply tank - farmer's estimate:

Measured - length:
 - width:
 - depth:
 - other:
 ∴ measured volume =

Quantity of dip chemical added to the sump/supply tank:

Total Volume of dip chemical used:

∴ Volume of dipwash used:

∴ Volume of dipwash/animal treated:

If a jetting wand was used:

Time spent treating each animal:

Volume of dip chemical used:

Dilution rate:

∴ Volume of dipwash used:

∴ Volume of dipwash/animal treated:

Factors relating to dip contamination:

Were the sheep daggy at the time of treatment?

Were they crutched before dipping?

How extensively?

Were the sheep emptied out before treatment?

What was the drainage time?

How frequently was the sump emptied and cleaned?

QUANTIFICATION OF THE PRESENT FLYSTRIKE OUTBREAK

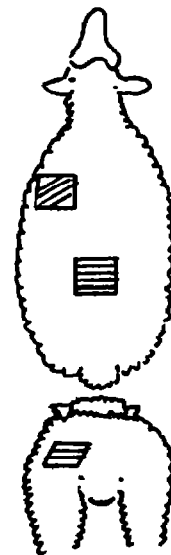
Stock Class	No. Affected	No. treated	% Affected
Lambs			
2 th			
MA Ewes			

INVESTIGATION PROCEDURE

Were wool samples collected?

How many?

List the sample nos and sites*:



*Suggested sample sites

Was a visit made to view the dip being used?

Comments on the dipping procedure:

Final conclusions

Recommendations: