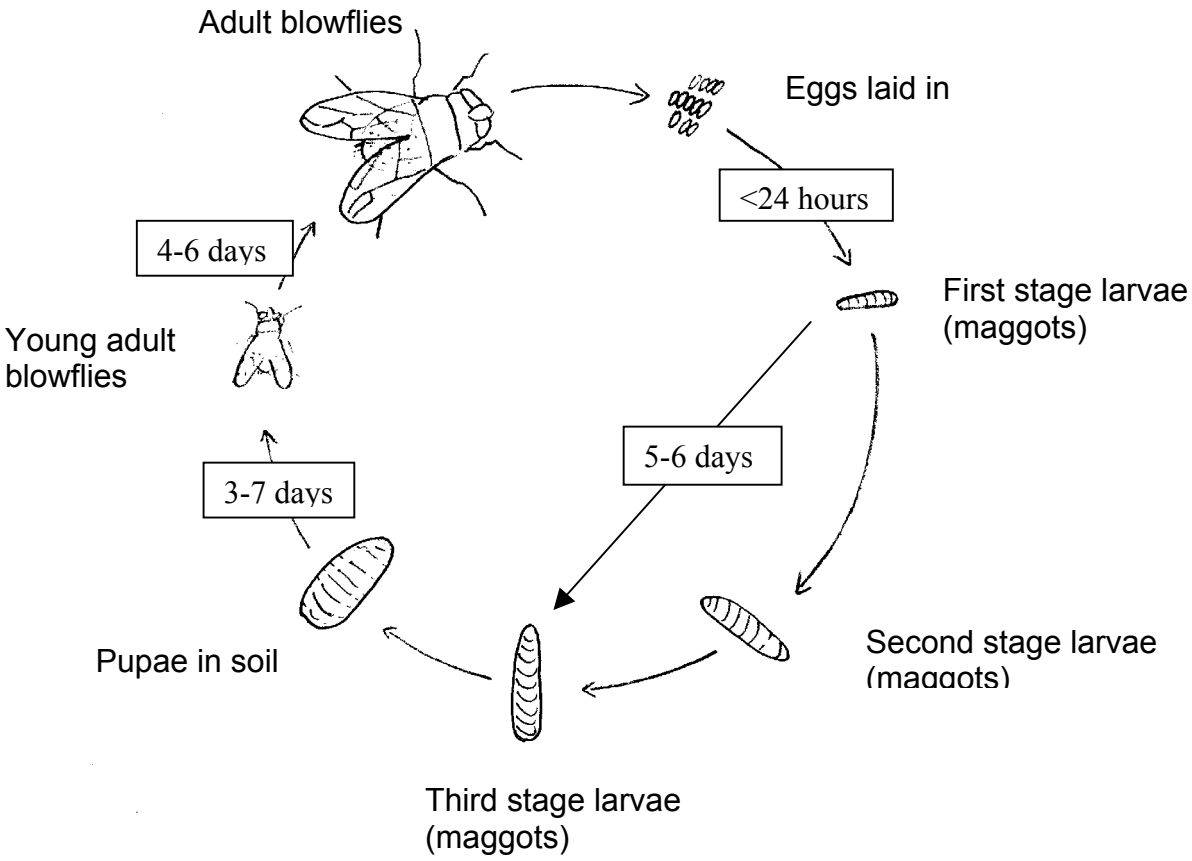
NADIS Sheep Disease Focus

Fly Control in Sheep

BLOWFLY STRIKE

In Britain, blowfly strike results in the opportunistic invasion of living tissues by maggots of *Lucilia sericata*, *Phormia terrae-novae* and *Calliphora erythrocephala* flies. Unlike the situation for sheep scab and lice, most of the blowfly lifecycle occurs off the sheep and adult flies can travel large distances between farms. Flies over-winter in the soil as pupae, which emerge as soil temperatures rise during the spring. Blowfly populations are greatest during the summer months, when given favourable conditions of humidity and warmth, the entire life cycle from egg to adult can occur in less than 10 days.

Blowfly lifecycle



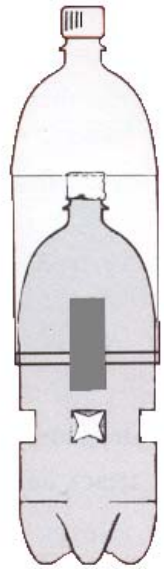
Affected sheep are usually restless and may bite or kick at the struck area. Affected areas are usually sites of faecal contamination or wounds and are, therefore, usually

over the hindquarters and perineum or elsewhere on the body at wound sites. Eggs hatch within 24 hours and maggot development can take as little as 5 days before they fall off and burrow into the soil to form pupae. Struck areas often attract other blowflies and further waves of strike. On close examination, the wool overlying struck areas is discoloured, moist and foul-smelling. During the early stages, the maggots, which are approximately 1.5 cm long, are only visible, end-on, when the wool is parted, but as the disease progresses, the wool falls out to reveal the underlying affected tissue. Unless promptly recognised and treated, tissue degradation products and maggot secretions can result in toxaemia and death.

Despite a good understanding of blowfly biology, the effective prevention of flystrike remains problematic. Blowflies can travel for several miles, so unlike lice and scab mites, they cannot be eradicated from a farm. Furthermore, while modern insecticides are extremely effective, in practice correct application of these drugs to achieve satisfactory residual activity is difficult.

CONTROL OF FLYSTRIKE

Farm management: The effective control of flystrike is seldom achieved by the use of insecticides alone. Freshly dead animals, faecal material and rotting vegetation provide protein for blowflies, so the prompt burial of carcasses and attention to general farm hygiene can aid in their control. Blowflies prefer a warm, moist and sheltered environment, so moving sheep to more exposed pastures can reduce the risk of strike. The smell of wool grease and the presence of foot rot, urine soaked wool, skin diseases, scour, or infected cuts attract blowflies to sheep. Established strike lesions attract even more blowflies. Recently shorn sheep are seldom struck and effective control of gastrointestinal parasites and footrot, general animal health care, crutching and trimming around the pizzle can further aid in the control of flystrike.



BAITED FLY TRAPS CAN BE MADE FROM ONE BROWN AND ONE CLEAR PLASTIC DRINK BOTTLE. FOUR 2 CM^2 HOLES ARE MADE BY CROSS SHAPED CUTS, WITH THEIR FLAPS PUSHED INWARDS, ABOUT 4 CM FROM THE BASE OF THE BROWN BOTTLE AND THE UPPER PART OF THE CLEAR BOTTLE PLACED OVER THE BROWN BOTTLE. A 1 CM HOLE IS MADE IN THE CAP OF THE BROWN BOTTLE. CHOPPED LIVER OR OTHER OFFAL IS PLACED IN THE BASE OF THE BROWN BOTTLE. FLIES WHICH ENTER THE BROWN BOTTLE ARE ATTRACTED TO THE CLEAR BOTTLE AND TRAPPED.

The timing of chemical application is crucial. Baited fly traps made from plastic drinks bottles can be used to monitor the activity of blowflies, so that chemicals can be applied before problems arise. The choice of dip chemical is partly governed by the length of protection required, which varies from as little as 2 weeks for some organophosphate plunge dips up to 16 weeks for the insect growth regulator pour-on, dicyclanil. The choice of application method depends on the product used and facilities available.

Plunge dipping: Plunge dipping in organophosphorus or high-cis cypermethrin can provide protection from blowfly strike for 3 to 8 weeks, depending on the product used.

For optimum control -

- sheep should have at least 3 weeks fleece growth at the time of dipping
- care should be taken to avoid excessive faecal contamination of the dip, which can bind some of the active chemical and even enhance the attraction of dipped sheep to blowflies
- plunge dip solutions should be correctly diluted and replenished in accordance with the manufacturer's instructions
- allowance should be made for stripping of organophosphate dips from the dip solution

To achieve best results, dags should be removed, sheep yarded overnight and feet cleaned by running sheep over slats before dipping. High concentrations of high-cis cypermethrin are required for blowfly control. High cis cypermethrin dips may not provide significant residual protection, but have the added advantages of nil or short meat withdrawal periods and controlling headfly, blowfly and lice. The products are relatively expensive, disposal of spent dip solution problematic and residues in wool toxic to aquatic environments. Plunge dipping also involves considerable animal handling stress. Flumethrin plunge dips, which are licensed for the control of sheep scab are ineffective for the control of blowfly strike.

Shower dipping: Many contractors now offer shower dipping services. Shower dipping can be used effectively for the control of flystrike, although it is not effective for the control of scab. When using a shower dipper, it is essential that the machinery is checked beforehand and that sheep are dipped for long enough to ensure that the chemical reaches skin level. As a rough guide sheep should be showered for one minute per week off shears. Saturation dipping requires at least 2 - 4 weeks wool growth for the insecticide to bind and faecal contamination of the dip solution must be minimised. Unfortunately, none of the plunge dip solutions available in Britain are licensed for use in shower dippers and there is no available information

concerning their efficacy or operator safety when applied other than by plunge dipping. Contractors using these products off-license in shower dippers, therefore, have no legal back-up in cases of lack of efficacy or adverse effects.

Hand jetting: Overseas, the use of hand jetting is gaining popularity for the control of flystrike. Dip solution is applied using a high pressure pump and specially designed handpiece to the breech and rump of lambs and also to the back and flanks of adult sheep. Jetting does not require expensive equipment, uses less dip solution than plunge or shower dipping, does not recycle dip so avoids stripping and faecal contamination problems and does not incur the problem of disposal of used dip.

Pour-ons: When applied correctly to potential areas of strike over breech and rump, high-cis cypermethrin or insect growth regulator pour-ons can provide effective control of blowfly strike. High-cis cypermethrin pour-ons provide protection for about 6 weeks, while the insect growth regulator pour-ons cyromazine and dicyclanil provide protection for 10 and 16 weeks respectively, although the duration of protection is to some extent governed by weather conditions and fleece length. They have similar advantages to jetting. Pour-on chemicals dissolve in the wool grease and are removed when animals are shorn. In the case of high-cis cypermethrin, this may lead to wool residue problems. Furthermore, the use of pour-ons in adult animals before shearing may be wasteful.

TREATMENT OF FLY STRIKE

Flystruck sheep need to be treated immediately. Struck areas are sensitive to sunburn, so should not be clipped other than to gain access to the wound. Application of an organophosphate or high-cis cypermethrin dressing will then kill the maggots and protect the surrounding skin from secondary strike. If plunge dip solution is used, it should be diluted to normal dip strength. Insect growth regulators (cyromazine and dicyclanil) are ineffective for the treatment of established flystrike.

HEAD FLY

Headflies (*Hydrotea irritans*) gather around the heads of sheep in large swarms and cause considerable annoyance. The flies feed on wounds, for example around the base of horns of young growing sheep, and can result in the loss of large areas of skin. Headflies are active from June to September, especially given still, moist and warm weather conditions and nearby woodland.

Synthetic pyrethroid plunge dips only afford limited protection against head flies. Prevention is best achieved using a high-cis cypermethrin pour-on, which may need to be repeated at 3-weekly intervals during high risk periods. Severely affected sheep may need antibiotic treatment in conjunction with protection of the wounds with Stockholm tar or insecticidal cream.

Your vet can provide advice about the management of flystrike and headfly in your flock.

While every effort is made to ensure that the content of this forecast is accurate at the time of publication, NADIS cannot accept responsibility for errors or omissions. All information is general and will need to be adapted in the light of individual farm circumstances in consultation with your veterinary surgeon.

Neil Sargison BA VetMB DSHP FRCVS