

Blowfly Strike (cutaneous myiasis, maggots)

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Cause

Blowfly strike in the UK results in the opportunistic invasion of living tissues by the larvae of *Lucilia sericata* (greenbottles), *Phormia terrae-novae* (blackbottles) and *Calliphora erythrocephala* (bluebottles). Unlike the situation for sheep scab and lice, most of the blowfly lifecycle occurs off the sheep and adult flies can travel large distances without recognising farm boundaries. Adult female flies deposit eggs on dead animals or soiled fleeces. Eggs hatch into first stage larvae within about 12 hours. These larvae feed on tissue, grow and moult twice, becoming mature maggots in 3 to 10 days, depending on temperature and humidity. Third stage maggots then drop to the ground and pupate, mature flies emerging between May and September after 3 to 7 days. Flies over-winter in the soil as pupae, and emerge as soil temperatures rise during the spring. Blowfly populations are greatest during the summer months. The entire life cycle from egg to adult can occur in less than 10 days.

Primary flies including greenbottles and blackbottles can initiate strike on living sheep, while secondary flies including bluebottles only attack areas which are already struck or damaged. Maggots are active and voracious, causing skin and muscle liquefaction as they develop attracting secondary blowflies. Toxins released by decomposing tissues and ammonia secreted by the maggots are absorbed through the lesions into the sheep's blood, causing systemic illness which can cause death.

Economic Importance

Cutaneous myiasis is a major economic concern for farmers with considerable prevention costs involved for all at-risk sheep. Sheep affected with blowfly strike have disrupted grazing patterns and rapidly lose weight especially if untreated for several days. Death occurs in neglected sheep.



Fig. 1: Disrupted grazing in this lamb affected by blowfly strike - note other lambs in the group are grazing normally.

Clinical signs

Blowfly lesions may range from one centimetre diameter areas of skin hyperaemia with a small number of maggots to extensive areas of traumatised/devitalised skin causing death of the sheep. It is legal requirement to inspect all sheep on lowground and upland farms daily. Blowfly strike is easily detected by observing sheep whilst grazing with affected sheep isolated from the group and showing characteristic behaviour of nibbling at the perineum; gathering sheep into a group with dogs will obscure this abnormal behaviour. Unfortunately, walking through a field of sheep has been replaced by gathering and inspecting sheep from a quad bike.



Fig. 2: Typical behaviour associated with flystrike with the lamb nibbling at the flanks/tail head. Note faecal

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staining of the lamb's perineum caused by poor control of parasitic gastroenteritis.



Fig. 3: Adults flies are attracted to areas of faecal staining surrounding the perineum.

Adults flies are attracted to areas adjacent to faecal staining surrounding the perineum; and much less commonly footrot lesions with exposed corium/exuberant granulation tissue, lumpy wool lesions on the skin, and urine scalding around the prepuce. In severe infestations the sheep are depressed and isolated from the flock.



Fig. 4: Blowfly strike around the prepuce with flies attracted by urine scalding in this castrated male lamb.



Fig. 5: Flystrike of footrot lesion causes severe lameness.



Fig. 6: Maggots infect the interdigital space of a sheep with footrot (see above).



Fig. 7: Lumpy wool lesions may also attract blowflies especially during wet weather.

Diagnosis

Large numbers of adult flies are seen on the fleece with maggots on the blackened skin once the surrounding fleece has been lifted clear. There is an associated putrid smell.



Fig. 8: Neglected case of blowfly strike with large numbers of maggots on the skin and in the surrounding fleece. Some wool has been lost and the skin is black and leathery.

Skin, previously damaged by flystrike, grows black wool.



Fig. 9: The wool has grown back black after skin damage from blowfly strike in this Suffolk ram 3-4 months earlier.

Welfare implications

The incidence of disease is estimated between 1.5-3% but this may be an underestimate when no control measures are adopted. Blowfly strike is a major animal welfare concern and infested sheep are greatly affected especially after several days. Flystrike of foot lesions causes severe non-weight bearing lameness. Death can result in neglected cases.

Treatment

Affected sheep can be treated by plunge dipping using an organophosphate preparation but it is more usual to treat individual infested sheep with dip wash applied directly to the struck area after first clipping away overlying wool. Cyromazine and dicyclanil prevent blowfly strike; these products do not treat blowflystrike. Antibiotics and NSAIDs should be given to severely affected sheep - consult your veterinary surgeon.

Prevention and control

Prevention of blowfly strike will be an integral part of the veterinary flock health plan. Lice are now endemic on almost all sheep farms and can be readily controlled with sheep scab and blowfly strike by dipping; consult your veterinary surgeon how dipping could fit into your flock health plan especially as there are concerns regarding the efficacy of macrocyclic lactones against sheep scab mites.

Before preventive measures using various chemicals are considered, much can be done to reduce the attraction of blowflies for example a grazing programme to prevent the massive build up of infective helminth larvae on permanent pasture during July and August (mid-summer rise) reduces diarrhoea caused by high parasite burdens. Where faecal staining of the perineum occurs this wool must be removed ("dagging" or "crutching").



Fig. 10: This lamb must be dagged immediately as blowflies will be attracted to this area.



Fig. 11: Dagging at-risk sheep.

In adult sheep removal of the fleece and any faecal contamination by shearing during late May/June removes this attraction well before the peak of the blowfly season.



Fig. 12: Shearing must not be delayed otherwise flystrike will occur.



Fig. 13: Ewe at-risk from blowfly strike.

Dipping in dimpylate (diazinon) is effective against blowfly strike for up to six weeks. These compounds are strongly lipophilic and replenishment of dips is important to maintain effective concentrations within the bath. It is essential to follow all instructions on the data sheet.



Fig. 14: It is essential to follow all instructions regarding dipping sheep.

While topical application of high *cis* cypermethrin pour-on preparations provides protection against fly strike, these preparations persist for only 6 to 8 weeks at the site of application and require re-application in many situations. Cyromazine, applied before the blowfly risk period is very effective against blowfly strike for up to 10 weeks after topical application and dicyclanil affords 12-16 weeks' full body protection. It is essential to follow meat withdrawal periods after use of these products.



Fig. 15: Topical application to the breech area.



Fig. 16: Care must be taken to apply the correct amount to the breech area of all sheep at-risk.

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