TECHNICAL NOTE TN768 / July 2024

Ectoparasites of sheep

Farm Advisory Service

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Summary

- **Common ectoparasites of sheep include lice, mites, ticks, and flies which have serious economic and welfare impacts.**
- **Co-infection with more than one ectoparasite can occur, making correct diagnosis essential to select the most appropriate treatment.**
- **Always consult your vet for the most appropriate treatment of ectoparasites and follow the manufacturer's instructions on dose rate, route of administration, and withdrawal periods.**
- **Sheep scab is covered in Technical Note (TN636) Control of Sheep Scab**

Lice

Outbreaks of lice, like scab, are on the increase. The only species of significance is the chewing louse, *Bovicola ovis.*

This is a small pale red/brown insect that spends the whole of its 4 to 5-week lifecycle in the wool. Infestations are typically seasonal and peak in mid to late winter as close contact facilitates spread. Louse populations decrease in the summer after shearing and in very wet or hot weather. Signs of louse infestation can be confused with scab including:

- Rubbing and biting at wool, especially on flanks.
- Loss and damage to fleece and hide.

However, in contrast to scab:

- There is no marked loss of body condition.
- Scabs are not seen on the skin surface.

It is vital that a correct diagnosis is made before treatment is started. This can be achieved by examining skin scrapes and wool plucks under a microscope. The sheep scab ELISA test can also be helpful in ruling scab in or out. Light louse infestations have little or no impact, but heavy infestations are an indicator of underlying poor health which should be investigated further.

Lice can be treated with organophosphate (OP) dips or pour-ons containing synthetic pyrethroids - alpha cypermethrin, cypermethrin or deltamethrin. Pour-ons are most effective when used on recently shorn sheep, as poor penetration of full fleeces can lead to incomplete control. Injectable endectocides of the macrocyclic lactone (3-ML, clear) wormer group do not kill biting lice.

Mites

Chorioptic Mange

The *Chorioptes bovis* mite is the cause of chorioptic mange and can cause irritation, hair loss, and thickening of the skin, especially over the lower limbs and poll. Clinical signs are a result of a hypersensitivity reaction and affected sheep may stamp and bite their feet. It can also cause exudative, fissured lesions on the skin of the scrotum which can adversely affect tup fertility. Although libido is unaffected.

Examination of superficial skin scrapes under the microscope can be used to detect the mites.
There are no licensed products for the treatment of chorioptic mange in sheep. If you suspect chorioptic manage you should discuss diagnosis and treatment options with your vet.

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Ticks

Traditionally the sheep tick, *Ixodes ricinus*, was associated with rough and unimproved upland pastures, but its geographical spread is increasing due to climate change and expansion of suitable habitats as a result of land use change e.g. environmental schemes. Ticks are particularly active in the spring and autumn but are increasingly seen all year round when the temperature exceeds 7˚C.

All animals, including humans, can be hosts of this blood sucking parasite. Each of the three life stages (larvae, nymphs, and adults) feed once a year attaching to a different host each time. Ticks may be found feeding on haired areas i.e. head, legs, and axillae. Ticks can cause irritation when they are feeding, but the main concern is the infectious agents they can transmit during this time.

Louping ill

This viral disease affects the central nervous system resulting in fever, lack of appetite, muscle twitching, unsteadiness, seizures, and paralysis which can lead to death. In areas where louping ill is common lambs will acquire temporary immunity from colostrum.

Tick Borne Fever (TBF)

TBF is caused by the bacterium, *Anaplasma phagocytophilium*. TBF temporarily suppresses the immune system of sheep infected for the first time. They are more susceptible to other infections during this two-to-three-week period. Abortion and tup infertility can also result. Affected sheep may not appear ill but can be dull with a high temperature and a poor appetite.

Tick pyaemia

Ticks can introduce the bacterium *Staphylococcus aureus* into the skin from where it can enter the bloodstream. Tick pyaemia is a disease of lambs with joint ill and spinal abscesses the most common consequences.

Ticks can be controlled using synthetic pyrethroid pour-ons or organophosphate (OP) dips. OP dips kill ticks immediately but pour-ons may offer longer protection from re-infection depending on the product used.

Care should be taken when introducing bought in sheep to farms that have ticks, particularly if they have been sourced from a tick-free area. These sheep should be protected from ticks using an appropriate product.

Flies

Sheep Blowfly

Green bottles, *Lucilia sericata*, are attracted to carcases, wounds or areas of soiled wool where they lay their eggs. These develop into maggots which digest the body tissues causing severe irritation and toxaemia. This is known as ‘strike’ and usually occurs in the breech area although other areas e.g. foot lesions can be affected.

Climate change has extended the strike risk period from March to December and forecasts are published weekly by NADIS in conjunction with Elanco. In the UK 80% of flocks have at least one case per year and it is estimated that 1.5% ewes and 3% of lambs are affected annually. Struck sheep lag behind the rest of the flock and lose body weight from disrupted grazing. It is estimated that around 5% of affected sheep will die. Affected sheep are agitated with patches of discoloured wool and a putrid smell on closer inspection. Black wool may grow back over healed lesions.

Blowfly strike can be prevented through the application of insect growth regulators (IGRs) e.g. dicyclanil which interferes with maggot development and provides several weeks of protection.

Other preventative measures include:

- Crutching, dagging, or shearing
- Good gastrointestinal worm control
- Prompt treatment of lameness
- Fly traps
- Prompt carcase disposal
- Use of exposed pastures in high-risk periods

Synthetic pyrethroids or OP dips can be used to treat existing strike cases.

Sheep Headfly

The sheep headlfy, *Hydrotea irritans* is an olive-green coloured fly with yellow wing bases. Active in summer it feeds at the base of the horns and is attracted to wounds. This causes the sheep to rub, scratch, or kick their heads leading to raw, sometimes bleeding lesions which can become infected with bacteria. Affected sheep are often seen with their head lowered and isolated from the rest, seeking shade. Disruption to grazing can lead to loss of body condition. Application of synthetic pyrethroid products between the horns or around wounds will prevent and reduce attack.

Keds

The sheep ked, *Melophagus ovinus*, is a wingless hairy fly. It spends its entire life cycle on the sheep and is found in the wool. Keds pierce the skin and suck blood, leading to affected sheep biting, scratching, and rubbing which damages the skin and wool. Ked infestation can devalue both the fleece and skin. Spread by close contact, cases peak in the winter and early spring. Keds are a dark brown/red colour and are larger in size than lice. They can be distinguished from ticks as they have six legs instead of eight.

Shearing removes the pupae and adult flies and both synthetic pyrethroid pour ons containing deltamethrin and OP dips are suitable for ked control.

Nasal Bots

The prevalence of nasal bots in the UK is currently low but may increase as a result of climate change. Adult *Oestrus ovis* flies squirt one to twenty live first stage larvae (bots) into the nostrils of sheep, where they feed and develop over the course of a month. Bots are then sneezed or coughed out onto pasture where they burrow into the soil to complete their development to adult flies. The second generation of nasal bots is produced in the autumn and overwinter in the sheep. Nasal bots cause mild discomfort, nasal discharge, sneezing, nose rubbing and head shaking. However, fly activity can disrupt grazing. A discussion should take place with your veterinary surgeon to assess the need for treatment. Macrocyclic lactone injectables containing ivermectin, doramectin and moxidectin and some oral drenches containing closantel are effective

Summary of treatment and prevention options

Product	Ectoparasites covered						
	Biting lice	Ticks	Blowfly	Headfly	Keds	Nasal Bots	Sheep scab
OP dip e.g. diazinon	Yes	Yes	Yes	Yes	Yes	No	Yes
Injectable macrocyclic lactone endectocide e.g. ivermectin, doramectin, moxidectin	No	No	No	No	No	Yes	Yes
Synthetic pyrethroids Alpha-cypermethrin pour on	Yes	Yes	Prevention & treatment	Yes	No	No	No
Synthetic pyrethroids Cypermethrin pour on	Yes	Yes	Prevention & treatment	Yes	No	No	No
Sythetic pyrethroids Deltamethrin pour on	Yes	Yes	Treatment only	No	Yes	No	No
Insect growth regulators Dicyclanil	No	No	Prevention only	No	No	No	No
Salicylanilides Closantel	No	No	No	No	No	Yes	No

Consult your veterinary surgeon or RAMA SQP for advice on product selection. Always read the manufacturer's instructions before use and adhere to dose rates, routes of administration and withdrawal periods.

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This Technical Note is a revised version of Technical Note (TN636): Control of Sheep Scab and Other Ectoparasites of Sheep (2011, SAC Consulting)

Production of this Technical Note was funded by the Scottish Government as part of its Farm Advisory Service.