

Control of sheep scab

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Summary

- **Sheep scab is one of the most contagious diseases of sheep in Great Britain. The disease seriously affects the welfare of sheep and has a significant economic impact through its effect on the condition of ewes, the growth rate of lambs, damage to wool and reduced quality of sheepskins.**
- **Clinical signs of sheep scab are similar to that of other ectoparasites, and co-infection can be seen, therefore correct diagnosis of sheep scab or other ectoparasites is essential.**
- **Treatment and control should be discussed with the farm veterinary surgeon and co-ordinated with neighbours.**
- **In Scotland sheep scab became notifiable to the local Animal and Plant Health Agency (APHA) office under the Sheep Scab (Scotland) Order 2010.**
- **Other regulations and guidance govern the use of dip and its disposal.**

Sheep Scab in the UK

By the numbers

Sheep scab is endemic with an estimated 8,000 to 10,000 outbreaks in the UK each year. The national prevalence is estimated to be around 9.0%, but there are higher regional incidences in Wales, Scotland, and North of England. Sheep scab can be diagnosed year-round, but a seasonal peak is evident in the autumn and winter. In addition to being a serious welfare issue, sheep scab is estimated to cost the UK sheep industry £78 to £202 million annually.

Life cycle and infectivity

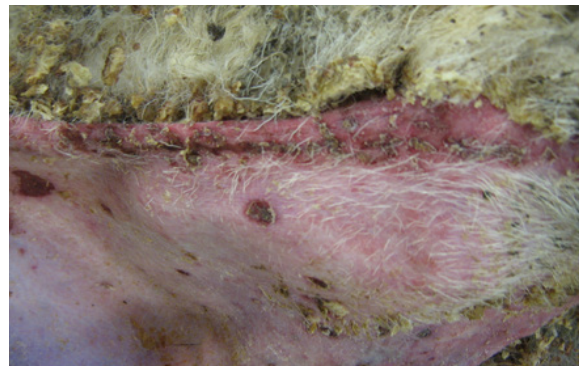
The parasitic mite, *Psoroptes ovis*, causes sheep scab. The female mite lays two or three eggs daily in the fleece of the sheep for about 42 days and the mite population doubles every 6 days. Under ideal conditions, larval mites hatch from eggs and go through various development stages to become adults after 10 days, with all life stages completed on the host.

Scab may be introduced to a flock by animals returning from shows, market, or away wintering, and from neighbouring flocks. Transmission of sheep scab is usually directly from one sheep to another, but mites can exist off the sheep and remain infective for up to 17 days. Thus fence posts used for rubbing, handling facilities, trees, bushes, trailers, shearing equipment and contaminated clothing can all be sources of infection.

The mites feed on the surface of the skin rather than burrowing or feeding on blood. The intense irritation they cause is a result of an allergic reaction to mite faeces. A lag phase of at least 10 days occurs between infection and the onset of clinical signs, but it is often four to six weeks before disease becomes apparent. The severity of the clinical signs varies between individual sheep and breeds depending on the location of infection, fleece density and length, and climatic conditions. Sheep that have recovered or been re-infected may harbour small numbers of mites. They can infect other sheep whilst not showing any signs of scab infection themselves.

How to recognise sheep scab in your flock

- Rubbing against fences and posts
- Biting at flanks
- Scratching with hind legs or horns
- Discoloured fleece, due to rubbing and scratching, especially dirt marks from hooves behind the shoulder.
- Areas of wool loss and bare areas especially on shoulders and flanks
- Dry crusty yellowish scabs in fleece with a moist red outer ring
- Clumping or clotting of wool
- Mites may be visible at the edge of lesions, in the ear, or in front of the eye
- Loss of body condition
- Emaciation leading to death.



In both early and advanced stages not all the animals in the flock will show symptoms but assume all are infected. In fact, around 60% of the flock may be infected by the time clinical signs are noticed.

Some sheep may be infected with lice or other ectoparasites and can show similar signs. Therefore, correct diagnosis is essential to select the appropriate treatment. There are two methods of diagnosing sheep scab – skin scraping, and an enzyme-linked immunosorbent assay (ELISA) carried out on a blood sample. When used for diagnosis i.e. sheep have clinical signs, then both skin and blood samples are collected from two or three sheep.

Skin scrape

The edge of suspected sheep scab lesions can be scraped with a scalpel blade and a small piece of wool plucked to be examined under the microscope for the presence of scab mites or lice. This method has a high level of specificity, but low sensitivity.

Blood sampling

Vets can take blood samples to measure sheep scab antibody levels using the ELISA test. This test has a high level of sensitivity and specificity and can show positive results from two to four weeks after infection i.e. before clinical signs are visible. However, antibody levels may remain elevated for some months after treatment therefore a positive result does not always confirm active infection. It can be useful as a quarantine or sentinel screen in a minimum of 12 representative sheep per management group.

Treatment and control programmes

Sheep keepers should plan their treatment and control strategy because of the high economic and welfare cost of sheep scab. They should seek advice from their veterinary surgeons and coordinate plans with their neighbours to maximise the benefits of their actions.

Treatment and control of sheep scab can be carried out by either plunge dipping or the use of injectables licenced for sheep scab. Treatments vary with regards to how quickly they kill sheep scab mites, the duration of protection against re-infection, and withdrawal periods. Products applied as a pour-on, or via a spray or jet are ineffective in the treatment and control of scab.

Injectables

Injectable endectocides in the macrocyclic lactone (3-ML, clear) wormer group i.e. moxidectin, doramectin and ivermectin can be used to treat sheep scab.

Depending on the product used one or two injections may be required. It is vital that the instructions in the product data sheet are followed. Dose rates should be calculated based on accurate weights and if a second injection is required it must be given at the correct time. Targeted selective treatment (TST) protocols are not appropriate for treating sheep scab and all sheep must be treated at the same time.

Injectable 3-ML products are also used to treat gastrointestinal roundworms. Anthelmintic resistance to this wormer group is becoming increasingly common and they should only be used for sheep scab control if the diagnosis has been confirmed. In 2017, resistance to 3-ML products was also confirmed in sheep scab mites, however the prevalence is currently unknown. You should contact your veterinary surgeon if you are concerned that treatment has not been effective.

Plunge dipping

The choice of dip is now restricted to organophosphate (OP) containing dips.

Sheep should be plunged into OP dip baths for a minimum of 60 seconds and have their head submerged at least twice, before being held in a drip pen for at least 10 minutes, then a holding area for at least 24 hours. The manufacturer's instructions should be followed to ensure that the initial target dip concentration is achieved. During dipping the bath should be replenished at the correct rate to maintain this throughout.

OP dips containing diazinon can also be used to control other ectoparasites e.g. blowfly, lice, keds, and ticks.

No resistance to OP dips has been reported yet in the UK, but prudent use is essential to reduce this risk.

Suspected treatment failure

Sheep which are injected, rather than dipped may continue to rub and scratch for up to ten days after treatment until all the mites are killed and the debris is lost from the surface of the skin.

However, if animals continue to exhibit symptoms of scab after treatment, then flock keepers should immediately contact their veterinary surgeon to investigate the problem, rather than simply re-treating.

Lack of treatment efficacy should be reported to the Marketing Authorisation Holder (MAH) or Veterinary Medicines Directorate (VMD).

Establishing a scab control process

Your sheep scab control programme should address the following points.

Routine flock scab control

- Assess the risk of sheep scab affecting your flock with your veterinary surgeon.
- Assume all sheep arriving on your farm could be infected with sheep scab and quarantine them. This will include all:
 - » Bought-in sheep including rams.
 - » Sheep returning from market, summer grazing, or shows.
 - » Sheep arriving for wintering.
 - » Sheep returning from away wintering.
 - » Strays
- Inspect regularly for signs of sheep scab during the quarantine period.
- Blood sample to test for exposure to scab and treat if necessary. Discuss the best timing for this with your veterinary surgeon.
- Do not mix with the main flock until full treatment has been completed in accordance with the manufacturer's directions.
- Double fencing (at least 1 m apart) will reduce contact with neighbouring sheep.

Remember it is not just sheep moved onto the farm which can be carrying sheep scab mites. Anything used to transport sheep e.g. trailers, wagons, and any equipment used by contractors and shearers pose a risk unless they are fully cleaned and disinfected prior to use.

What to do in the event of an outbreak

- Confirm the diagnosis with your vet.
- Notify the local Divisional Veterinary Manager (DVM) of APHA.
- If possible, co-ordinate treatment with neighbours.
- If using ivermectin or doramectin move the sheep to a clean area after treatment. Prevent contact with untreated, sheep for at least 7 to 14 days, depending on the product used. A clean area in this context will have been free of sheep for at least 3 weeks.
- Consider the withdrawal period of the chosen product when treating finishing lambs.

Legislation

The Sheep Scab (Scotland) Order 2010

Under the [Sheep Scab \(Scotland\) Order 2010](#) if sheep scab is suspected the keeper or veterinary surgeon should notify the Divisional Veterinary Manager (DVM) of the local APHA office. Movement restrictions (except for treatment or slaughter) are imposed, and keepers should take action to prevent the straying of stock or contact with other livestock. Compulsory treatment or slaughter of all sheep on a premises with confirmed sheep scab is required. Sheep for slaughter need to be transported directly to the abattoir and be kept separate from all other livestock.

Within two weeks of treatment written confirmation should be provided to the DVM detailing the date of treatment, number of sheep treated, the product used, and confirmation that affected carcasses have been disposed of. Alternatively a vet declaration can be supplied to the DVM confirming that no affected sheep or carcasses are present on the holding and that no movements have taken place in the previous 16 days.

The order is enforced by local authorities who have the powers to serve notices, where farmers are failing to take action, imposing movement restrictions, and requiring them to arrange and pay for a veterinary investigation to establish if scab is present.

This Order does not apply in the local government area of the Shetland Isles, where the [Sheep Scab \(Shetland Isles\) Order 2003](#) is enforced. This includes provision for advance notification of movements of sheep onto the islands from the mainland and isolation until tested and treated.

Failure to comply with any part of these Orders is an offence under [the Animal Health Act 1981](#).

Dips, sheep dipping, and dip disposal are under legislative control to protect the environment, operators, animal health, and consumers.

How to get your sheep dip certification

Only holders of a Certificate of Competence are legally able to purchase sheep dip and the certificate number must be recorded and retained by the prescriber for at least three years.

To achieve a Certificate of Competence the [National Proficiency Tests Council \(NPTC\) Level 2 Award in the Safe Use of Sheep Dip](#) training course should be completed. Those dipping sheep must hold, or be working directly under the supervision of, a certificate holder.

All involved should adhere to the [Mobile Sheep Dipping Code of Practice 2023](#) and [Scottish Environmental Protection Agency \(SEPA\) Sheep Dipping Code of Practice for Scottish Farmers, Crofters and Contractors](#).

Health & safety

If you employ staff to dip sheep a Control of Substances Hazardous to Health (COSHH) assessment is required. The Health and Safety Executive (HSE) has prepared a publication, called "[Sheep Dipping – Advice for farmers and others involved in dipping sheep \(Agricultural Information Sheep No 41\)](#)" and a copy should be obtained to assist with the COSHH assessment.

Disposal of sheep dip

Farmers require authorisation from SEPA to dispose of sheep dip onto their land under the [Water Environment \(Controlled Activities\) \(Scotland\) Regulations 2011](#). This is also a cross-compliance requirement under [GAEC 3 – The Protection of Groundwater Against Pollution](#). An application form for authorisation [can be found online](#) and Forms A and F need to be completed with details of the site including a map and information regarding its suitability for spreading. Submit your application well before you plan to dispose of dip.

Alternatively, the spent dip may be disposed of via a registered waste disposal company and its disposal recorded on a Waste Transfer Note.

Action Plan

- Consult your veterinary surgeon if sheep scab is suspected in your flock. They will obtain diagnostic samples and report to the VMD if positive.
- Discuss the treatment and control of sheep scab with your veterinary surgeon and co-ordinate this with neighbours.
- In the event of suspected treatment failure, report this to the VMD or MAH.
- Regularly review regulations and guidance on the safe use of sheep dip to ensure compliance.

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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)