Why are my sheep itchy and how should I treat them?

Excessive itching is an important clinical sign that should be investigated when it is seen in any group of sheep or individual. Sheep will rub and generally scratch when the skin becomes warm underneath the fleece or if they have a benign irritation. Excessive itching to the point that the skin starts to become visible and damaged (fig 1) or where unwarranted wool loss is evident in the field (fig 2), is a concern to the farmer and requires prompt examination. There is usually a parasite or disease process involved.

What if it is sheep scab?

There is still a reluctance by farmers to investigate the cause of itching within the flock, primarily due to the fear of finding sheep scab. Sheep scab caused by the mite Psoroptes Ovis (fig 3) is widespread and uncontrolled across many parts of the UK.

Figure 1 - Scratching has caused extensive damage to the skin and wool loss on this ewe.

Figure 2 - This itchy lamb uses a fallen tree to scratch. Wool tags, as seen on these branches, are commonly seen on fences when sheep are itchy.

Figure 3 - Psoroptes ovis mite as seen under the practice microscope following a skin scraping of a scabby sheep. It is likely that if scab is suspected or if it is present in the area, it may well be present in the flock. Other conditions including lice, ticks, flystrike, bacterial skin infections and scrapie can also cause itching in sheep. Different parasites require differing treatments therefore, it is important not to delay in diagnosing the problem or rule out sheep scab so that the appropriate treatments and control measures can be carried out. Treatment should not be instigated until the sheep have been handled and examined by a vet. Using an ineffective product is a waste of time and money and allows time for further damage and spread to the rest of the flock by the untreated parasite.

Sheep scab mites are highly contagious, with only one mite required to initiate infection throughout the flock. They are transmitted from sheep to sheep via direct contact, tags of wool or contact with infected fence posts, pasture, handling facilities, transport and clothing. The mites can survive off the sheep in the environment for up to 18 days, before they need to re-infect an animal to continue feeding.

The female mite will lay eggs on the sheep. The eggs hatch and moult through a series of developmental stages. Favourable conditions promote the development of the mite population. A moist warm microclimate at the skin level, for example in sheep with a full fleece or after regrowth, provides the ideal conditions for mite development. This, combined with closer contact with infected sheep over the
housing period (fig 4) can lead to a severe sheep scab outbreak within a flock.

Figure 4 - Either sheep scab or a lice infestation will spread rapidly through sheep that are housed over the winter period.

The mite population doubles every 6 days and so large numbers can build up rapidly. They feed on the surface of the skin and deposit faeces causing a severe allergic reaction which results in intense itching and irritation to the affected sheep. The clinical signs can occur from 20 to over 100 days after the initial mite infection. The early stages of infection can be difficult to detect and varying degrees of infection can be seen across a flock due to the progression of disease.

Recent research has shown that individual sheep can develop varying degrees of immunity to the scab mite, with some sheep showing more severe clinical signs than others.

Infected sheep produce an antibody response to proteins found only in the sheep scab mite. This antibody response is very useful and can now be used diagnostically to determine the presence of disease or exposure to the scab mites. Your vet can inform you about the most effective way to use this test.

Sheep scab is a major welfare concern. Severely affected sheep are obviously distressed and irritated by the intense itching (fig 5). They spend reduced times feeding and therefore fertility, growth rates of lambs at foot and ability to maintain body condition is significantly reduced. Affected lambs will take longer to finish and have reduced growth rates. In some cases the overwhelming hypersensitivity response can result in severe neurological signs leading to seizures and death.

Figure 5 - This swaledale ewe was infected with sheep scab when up on the fell at common grazing. Shared grazing presents a particular challenge in the effective control of sheep scab.

Work carried out by AHDB Beef and Lamb estimated the cost of a scab outbreak to be around £20 per ewe for an outbreak where diagnosis and treatment was delayed. This compared to the prompt diagnosis and treatment of a scab outbreak, costing of £1.40 per ewe and negligible losses in production.

How can I tell if it’s scab or lice?

It is impossible to accurately diagnose either condition without handling and examining the sheep. The sheep should be examined by parting the wool and looking at the skin. Look for scabs or crusting, areas of redness (inflammation), moist, discoloured (sometimes yellowing) wool or skin and in some cases the presence of any obvious parasite moving through the wool. Mites and lice can sometimes be seen with the naked eye, but examination with a microscope must be used to identify the parasite and confirm diagnosis.

To improve the accuracy of diagnosis, multiple samples should be taken including wool plucks, scrapes and active scab material. Mites are more likely to be found in the moist inflamed areas at the leading edge of a recent scab lesion. In some cases where parasite numbers are low it may be difficult to find individual mites. Therefore, more sheep should be resampled, or using the blood test may be appropriate. See the treatment section for treatment and control.

Farmers in Scotland are required to notify their vet if they suspect sheep scab under the Sheep Scab (Scotland) Order 2010. The 1997 Sheep Scab order (covering England, Scotland and Wales) states that it is a criminal offence to fail to treat sheep or move sheep visibly affected with sheep scab.

Is it lice?

Lice (the chewing, biting louse Bovicola ovis) also causes itching and wool loss (fig 6). The clinical signs
can be indistinguishable from the sheep scab mite. The lice spend their entire lifecycle on the sheep and so spread is via direct contact between sheep. They feed on skin debris and cause irritation to the sheep during this process.

**Figure 6 - This ewe has been scratching causing significant wool loss. As the wool was parted, it was possible to pick out lice scuttling away from the light. Skin scrapings were taken from the edge of any lesions but no mites were seen under the microscope.**

The lifecycle from the egg to adult stage takes around 4-5 weeks. As lice mature and feed their bodies become darker/red/brown in colour and are more visible to the naked eye. Lice infestations intensify during the winter period when sheep are housed or in closer contact. Lice can survive off the sheep in the environment for up to 17 days.

Affected sheep are often debilitated and in poor condition possibly affected with an underlying chronic disease or insufficient nutrition. Lice do not like very wet or hot weather and so their population tends to reduce after periods of heavy rain or during the summer. A thick fleece protects them from unfavourable conditions and therefore shearing is useful in reducing the population and can reduce lice numbers by up to 30-50%. Louse infections are more commonly seen during the winter months.

**Other causes of itching sheep:**
Dermatophilosis is often called 'rain scald' or 'lumpy wool' and is caused by a bacterial infection, *Dermatophilus congolensis*. This usually follows a period of prolonged rain and wet/moist fleece conditions leading to crusting and scab formation at the skin level along the back of the sheep. This can be irritating and cause affected sheep to itch. An improvement in weather conditions and treatment with antibiotic therapy is successful at improving the clinical signs.

**Ticks**
Sheep act as the hosts for the three blood feeding stages of ticks. The most common tick in the UK is *Ixodes ricinus*. When off the host, ticks live in highly vegetated or woodland areas and require warm moist conditions to survive. They attach to the sheep usually on the haired areas i.e. head, ears, legs and cause intense irritation as they feed (approx. 2-10 days). This intense irritation may resemble sheep scab.

Ticks are important due to their part in transmitting disease. Louping ill, tick bourne fever and tick pyaemia are all transmitted by ticks and cause significant production losses. Lyme disease is also transmitted by ticks and can cause severe disease in humans, dogs and horses.

**Blowfly strike**
Blow fly strike is caused by the larval stages of the green bottle and blue bottle flies. These flies lay their eggs on the fleece and hatch within 10-12 hours. Following hatching the larvae reach the skin surface and start to cause intense skin inflammation and damage as they move through the skin digesting the surface layer using proteolytic enzymes. This damage results in intense irritation and itching and results in further fly attraction form the damaged necrotising skin. Untreated sheep rapidly become debilitated and systemically unwell due to the release of skin toxins (fig 7).

**Scrapie**
Scrapie is a disease affecting sheep that causes neurological signs and is eventually fatal. Alongside nervous signs, the skin may be affected, which can result in intense itching, causing repeated rubbing, scratching and nibbling, causing skin damage and wool loss. It is a notifiable disease and any suspicions of scrapie should be reported to your vet and the Animal and Plant Health Agency.

**Diagnosis and Treatment**
The products that are often used to treat lice are different to those products commonly used to treat sheep scab. Therefore, obtaining a diagnosis is crucial in the success, speed and cost efficiency of treatment. There may be more than one condition present. Therefore, sheep that appear to be suffering from lice may have an underlying sheep scab infection. This will only be detected by a thorough veterinary examination and appropriate samples being assessed.

The vet will also assess the overall health of the flock, the disease history and health status of the local area to suggest a likely diagnosis. Whilst there will be an associated cost with this visit, the savings made on appropriate treatment and action will outweigh a delay in recovery if inappropriate treatments are 'tried' first.

The only treatment that treats both scab and lice is effective plunge dipping in OP dip.

**Flock protection**

Sheep scab is an expensive condition to buy in when you purchase new sheep or bring sheep home from 'tack' grazing. It is far more cost effective to treat a smaller number of incoming sheep, as a precaution rather than having to treat the entire flock and suffer production losses.

As described above, sheep in the early stages of infection may look normal. Do not take the risk. Isolate the sheep for at least 3 weeks, ideally longer and monitor for disease. Ensure that these sheep are treated with an appropriate product that treats and protects against sheep scab. Ensure that new rams are also treated and quarantined appropriately.

If they have been bought through a market or show, or if they have been transported in a trailer that has been occupied by other sheep, they must be treated on arrival and kept separate from the main flock for a least 3 weeks. Appropriate treatments are plunge dipping with OP or injectable treatments with either Doromectin (Dectomax), Moxidectin 1% (nb do not use in sheep that have previously been vaccinated with Footvax) or Moxidectin 2% (Cydectin or Zermex).

**Risk Factor checklist**

*Are you at risk?*

- I buy in replacement ewes, store lambs or rams.
- My sheep graze away from the farm on land that has neighbouring sheep.
- I graze common grazing land.
- I use contract shearers during the summer.
- I use a scanning contractor in the winter.
- I share sheep equipment i.e. race, trailer, drenching gun with other sheep farmers.
- Occasionally neighbouring sheep get in with my sheep.
- There are sheep in the area with scab.
- I show my sheep.

Most farms will be at risk from bringing home sheep scab. To keep these risks to a minimum it is crucial that all equipment is washed and disinfected before being used by your flock and that any new sheep are isolated, monitored and treated appropriately. The scab mite doesn’t survive long on smooth metal surfaces but it does survive well in wool tags on equipment and in clothing.