

# Psoroptes ovis (sheep scab) ELISA

## Frequently Asked Questions:

### What sample type do I need for the sheep scab blood test?

The test is carried out on serum, so red topped blood tubes are needed for testing.

### Why do I need to use a different submission form to the one I use for other testing?

There is a dedicated submission form for use when submitting samples for sheep scab ELISA testing. This can be found on the website [Sheep\\_scab\\_ELISA\\_submission form.pdf](#) This form gathers relevant information on the reason for testing, what products active against sheep scab mites have been used and when, and flock management as it relates to risk factors for sheep scab. Having this information allows us to offer a meaningful interpretation of the test results including offering advice on where disease may have come from in the case of positive flocks. It also allows us to identify flocks where there may be resistance to the injectable MLs so we can get an idea of how widespread this may be and advise on appropriate action to take in this situation.

### Where do I send samples?

Samples should be sent to the address at the bottom of the submission form.

Biobest Laboratories Ltd  
6 Charles Darwin House  
The Edinburgh Technopole  
Milton Bridge,  
Penicuik  
EH26 0PY

### How long until I get results?

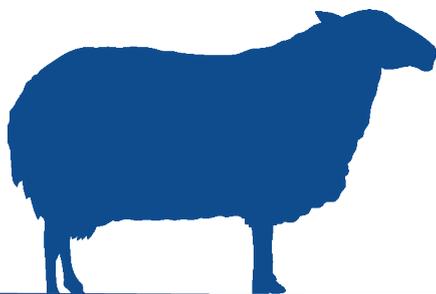
The ELISA blood test is run once a week and this is currently scheduled for every Thursday. Samples to be tested need to be at the lab on the Wednesday as the test has an overnight stage before samples can be run the following day. So samples received on a Wednesday will typically be tested on Thursday and results reported either late on Thursday or on Friday morning. Samples received on a Thursday that miss that week's run will not be tested until the following week but will be stored appropriately in the meantime. If large numbers of samples are to be submitted, for example as part of an initiative in an area or by a veterinary practice for many flocks under their care, then ensuring samples arrive on a Wednesday allows the shortest time between sampling and reporting of results. This may be relevant if sheep are held off common grazing pending treatment, if deemed necessary. For very large numbers of samples please contact the lab in advance.

### How does the test work?

The test detects antibodies in sheep blood following exposure to the sheep scab mite. Antibody levels are detectable from 2 weeks post-infestation. The test also detects antibodies in sheep before clinical signs of sheep scab. It can be used to screen flocks and reduce the 'just in case' whole flock prophylactic treatment where there is no evidence of exposure to sheep scab.

### How good is the test at detecting positives?

The blood test has sensitivity of 98.2% and specificity of 96.5%. During test validation at Moredun there were no cross reactions detected to common parasites of sheep i.e. lice, major gastrointestinal parasites. The test is best used at flock level, so testing multiple sheep, even when investigating suspect clinical disease. When used for flock screening, analysis undertaken by BioSS found that by sampling and testing 12 sheep (including any with itchy skin disease) from a flock / management group of up to 2000 animals, this gave a 95% confidence of detecting exposure where prevalence was at least 20%. It is not uncommon



when screening 12 samples to find only a few are positive but based on test characteristics and results of previous work we can interpret the flock status (evidence of exposure / no evidence of exposure) based on the antibody levels as well as how many are positive.

#### **I think my sheep have sheep scab? Can I use the blood test?**

In the case of individual itchy sheep it is still faster and better for your vet to take and examine skin scrapes. This allows ectoparasites other than only sheep scab mites to be detected. It is not uncommon to find lice causing low-grade pruritus in sheep flocks. Where there are no skin lesions / areas of fleece loss or skin scrapes are negative but scab is still suspected then the ELISA blood test can be a useful tool to investigate. Sampling and testing blood samples from more than one affected individual is advised as no diagnostic test is 100% accurate and testing multiple sheep increases the chances of detecting evidence of exposure.

#### **We buy replacements through a market. Can we test incoming animals to check they are scab-free?**

Given that sheep may come into contact with infested sheep (that may not yet be showing clinical signs, so will look entirely healthy) when at auction it is best to assume purchased sheep may have been exposed. If purchased animals can be kept separate from the main flock (quarantined) the ELISA blood test can be used from at least 2 weeks after purchase to screen by testing 12 sheep in the group.

#### **If we have a closed flock, is there any reason to test?**

In flocks that don't buy in stock there may still be a risk of sheep scab from neighbours / contractors. Where there are risk factors that put your flock at some degree of risk, and particularly if you currently treat the whole flock 'just in case', it is worthwhile testing 12 sheep before routine prophylactic treatment. If the screen shows no evidence of exposure, then there is no need to treat. This will reduce unnecessary treatments and in the case of the injectable 3-ML products, which are also important wormers, this will preserve this class of drugs and reduce emergence of anthelmintic resistance. There have recently been confirmed cases of resistance in sheep scab mites, so the importance of using these treatments only when necessary cannot be underestimated.

#### **I dipped my flock in autumn and it's now winter and they are itching. Can I use the blood test to screen for sheep scab?**

As long as we have information on the dates of treatment with products (plunge dip or injectable) active against scab then we can usually interpret the results of screening, although in cases where the treatment was less than 4 months ago then there may be some sheep that test positive and where this is due to previous exposure rather than active sheep scab. In this case, retesting those that tested positive in 2 – 3 weeks time can show whether antibody levels are declining (consistent with previous exposure) or rising (consistent with current sheep scab infestation).

#### **I have treated my sheep with an injectable and they are still itching. Has the treatment been ineffective?**

The first cases of resistance in sheep scab mites to the 3-ML injectables were confirmed earlier this year. There are guidance documents for vets and SQPs on what to do in cases where treatment appears not to have been effective. It is important to determine what product(s) was used and whether this has been done in accordance to the product datasheet to determine whether treatment was carried out correctly. Where treatment has been carried out correctly it is important to look for mites on skin scrapes and if live mites are seen report the lack of efficacy to the VMD [www.gov.uk/report-veterinary-medicine-problem](http://www.gov.uk/report-veterinary-medicine-problem) and Market Authorisation Holder for the product used. The blood test can be used to investigate further by demonstrating that antibody levels have not declined post-treatment as would be expected where treatment has been effective. Retesting seropositive animals at least 2 weeks later will show changes in antibody levels.

