

Factsheet

Sustainable Sheep Systems

Enzootic Abortion of Ewes (EAE)



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The definition of an abortion is the expulsion of a foetus and placenta before term.

Enzootic abortion of ewes (EAE), also known as chlamydial abortion, ovine enzootic abortion (OEA), or kebbing, is the most common infectious cause of abortion in sheep in the UK.

What causes EAE & its effect on a flock

EAE is caused by the bacterial organism *Chlamydia abortus* which invades the placenta during pregnancy. This can result in abortion or the birth of weak lambs. As well as infecting ewes, rams can also be transiently infected.



As this organism grows inside the pregnant ewe, it causes inflammation of the placenta (placentitis), preventing the transport of nutrients to the developing lamb and affects the production of hormones which control pregnancy. The organism may also cross the placenta and cause damage to the lamb's internal organs.

EAE is transmitted from ewe to ewe through birth products (aborted lambs, placenta and birth fluids) from infected ewes which contaminate the environment (i.e. lambing pens or out in the field). These provide a source of infection to other susceptible ewes through ingestion and inhalation.



Figure 1: Aborted lamb and placenta

Chlamydia abortus is also a zoonotic pathogen and therefore can be passed from animals to humans posing a particular risk to pregnant women. It is important that pregnant women avoid contact with ewes and lambs during lambing time because of this reason.

Once a ewe has been infected and aborted, she becomes immune. However, she will remain a carrier of the disease. There is still a risk of shedding the *Chlamydia abortus* organism at future lambings although the amount of organism shedding is highest in an aborting ewe.

Importance of Diagnosis

It is important to diagnose the cause of abortions as there are numerous reasons why ewes may abort. The two main causes are EAE and Toxoplasmosis. Other infectious causes include *Campylobacter sp.*, *Salmonella sp.*, Borders Disease and non-infectious causes such as illness in the ewe.

Ewes aborting on the farm can affect the farm business financially as there may be less lambs to sell; affect the flock as there may be less lambs to select replacements from; and it can affect the mental health of people working with the flock as lambing will be a challenging time especially if there are multiple lamb losses.

If you experience sheep aborting in your flock, it is important to contact your vet to investigate and obtain a diagnosis to identify the cause of the abortions so the problem can be addressed. Collecting aborted lambs and placenta is the best way to investigate.

After lambing, blood testing ewes that have aborted can help assess exposure to abortion agents by looking for antibody levels to the bacteria.

Samples of aborted material, including dead lambs and placenta, can be submitted to a veterinary laboratory for diagnosis. If you have had multiple abortions on-farm it is important to submit multiple samples if available, to ensure a quick and accurate diagnosis.

Abortions caused by *Chlamydia abortus* typically occur in the last few weeks of pregnancy. Work at Moredun has shown that regardless of when sheep become infected, the organism does not actively cause disease until after 80-90 days of pregnancy (Moredun, 2022). It is not only pregnant sheep which are susceptible to picking up the infection. Latent infection is when a non-pregnant ewe (or even a lamb) becomes infected, *Chlamydia abortus* colonises the lining of the uterus and lies dormant. At some point in mid-pregnancy an unknown trigger causes the organism to become active, causing abortion.

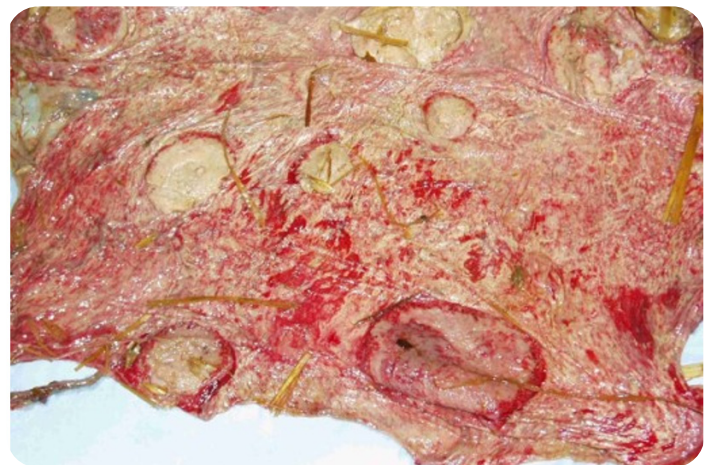


Figure 2: Placenta from a ewe affected by EAE showing a purulent placentitis

The graph below shows the percentage of each cause of sheep abortion diagnoses made by SRUC in Scotland in 2022.

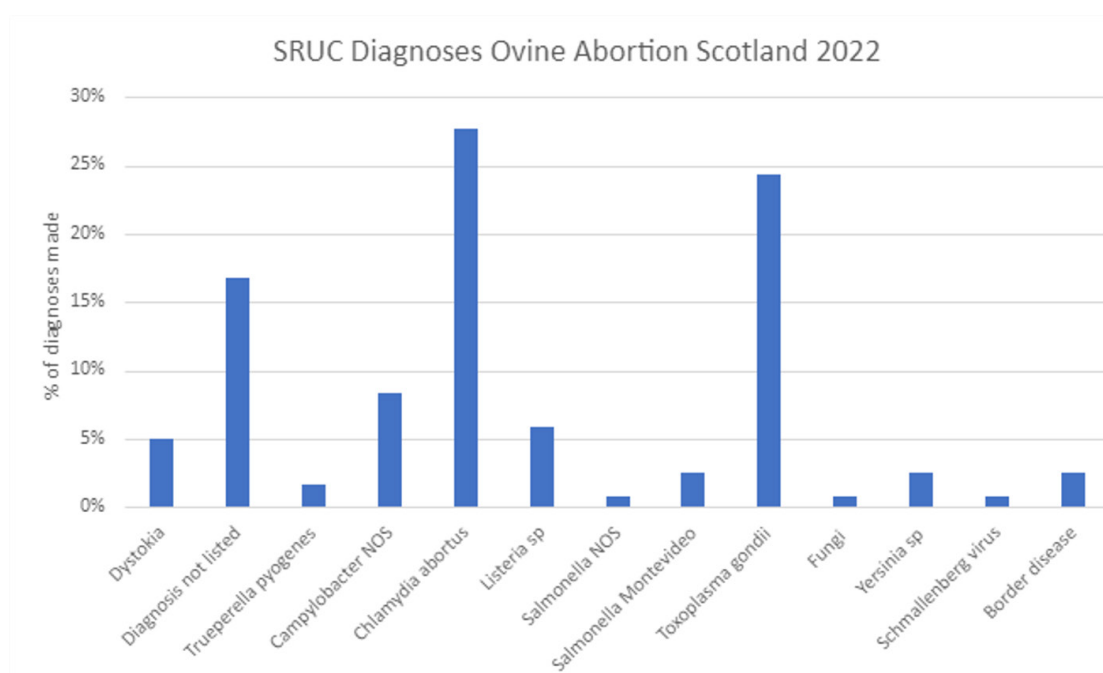


Figure 3: SRUC Sheep Abortion Diagnoses in Scotland 2022 (SRUC, 2022)

Control - Treatments and Prevention

Due to the reasons already outlined the swift isolation of any aborted ewes, destruction and disposal of aborted material (placentas, dead lambs, and birth fluids) plus disinfection of the abortion site are crucial for limiting spread of infection.

Awareness of latent infection of non-pregnant sheep is key to controlling EAE as infection in one year most often results in abortion in the following year – for example exposed lambs that then abort as hogs.

One way in which infection is introduced to a flock is by purchasing latently infected sheep. This often results in a small number abortions at the first lambing year, followed by an 'abortion storm' the next year (due to infection spread to other naive sheep within the flock).

You can blood test a proportion of a flock to determine the EAE status. If a flock is clear of infection, it is important to keep the flock clean by breeding homebred replacements or sourcing replacements from another EAE clear flock where possible. There is a scheme where you can become EAE accredited - 'Premium Sheep and Goat Health Scheme'.

If the blood tests show that the flock has been exposed to infection or if you are purchasing replacements with an unknown health status, vaccination is recommended.

Vaccination can prevent enzootic abortion in flocks. There are three vaccines available in the UK (two of which are live vaccines). Vaccines are administered ahead of tupping. The live vaccines have a meat withdrawal period of 7 days and neither should be used in pregnant animals or less than 4 weeks before mating.

If you are experiencing an abortion storm, diagnosis and treatment should be discussed with your vet. In many cases despite treatment abortions will continue and efforts should be focussed on minimising spread within the flock and implementing a vaccination plan for the following year.

Further Information & References

1. [Moredun \(2022\) Chlamydial \(Enzootic\) Abortion: About Chlamydial \(Enzootic\) Abortion](#)
2. [SRUC \(2022\) SRUC Veterinary Investigation Laboratory](#)
3. [SRUC \(2022\) Ovine Abortion Season 2022 So Far](#)
4. [SRUC Veterinary Services \(2022\) Parasitic Diseases Causing Deaths and Illthrift in Scottish Cattle \(wiley.com\)](#)

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Visit the FAS Sustainable Sheep Systems webpage to to access webinars, technical notes and podcasts produced through the series: [Sustainable Sheep Systems | Helping farmers in Scotland | Farm Advisory Service \(fas.scot\)](#)



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