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Welcome to your November/December newsletter,

This is the last newsletter for 2021 so, we would like to take this opportunity to thank you for your custom during 2021.

This time, we have covered the management of liver fluke in sheep. Spread by mud snails, liver fluke costs the industry in excess of £300 million in the UK alone.

Cattle with lungworm can become carriers over the winter which can cause issues during the next grazing period. We take a look at the signs, life-cycle and treatment of lungworm, including the vaccination available.

We hope you find these topics useful. Let us know, when we are on farm next, what topics you think would be useful for us to cover here. We look forward to being your trusted partner and part of your team in 2022 and beyond.

Best wishes,

The team at Kernow Vets

In this issue:



Management of liver fluke in sheep

Diagnostic testing can help ensure targeted treatment at times when liver fluke are active in your flock



Lungworm in cattle

Lungworm has a significant economic and welfare impact on farm and costs the farming industry £5.2 million every year

Liver fluke management and diagnostic testing

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Liver fluke is flatworm parasite that can cause clinical disease and poor production in many grazing species, including cattle, sheep and camelids. The same species of liver fluke causes infection over all animal species in the UK. Losses due to liver fluke disease (fascioliasis) are significant and estimated to be £300 million pounds a year in the UK. Condemned livers in cattle and sheep cost the industry £3.2 million pounds in 2010. The estimated cost to sheep farmers is £3-5 per infected sheep (SHAWG report 2020/21), due to direct production losses (weight loss, sudden death), rejected livers at abattoir and poor reproductive performance.

The chart to the right shows that the risk of liver fluke disease varies from year to year, depending on weather patterns. Wet summers and mild, wet winters pose the highest risk of disease. Traditionally liver fluke has been more common in the milder, wetter west of the UK but, changing climate has led to a gradual spread eastwards. We would always recommend preventative treatment, based on a risk-based approach, varying treatments from year to year.

The liver fluke parasite has a complex lifecycle involving a mud snail, free living stages in the environment, and larval stages within host animals. The mud snail needs muddy, poorly-drained areas, where livestock graze, to survive. Each stage of the life cycle involves multiplication of the parasite and one fluke egg can lead to 100,00 offspring, over a 3-4 month period, in favourable weather conditions. In sheep, both the immature and adult stages of liver fluke can cause disease.

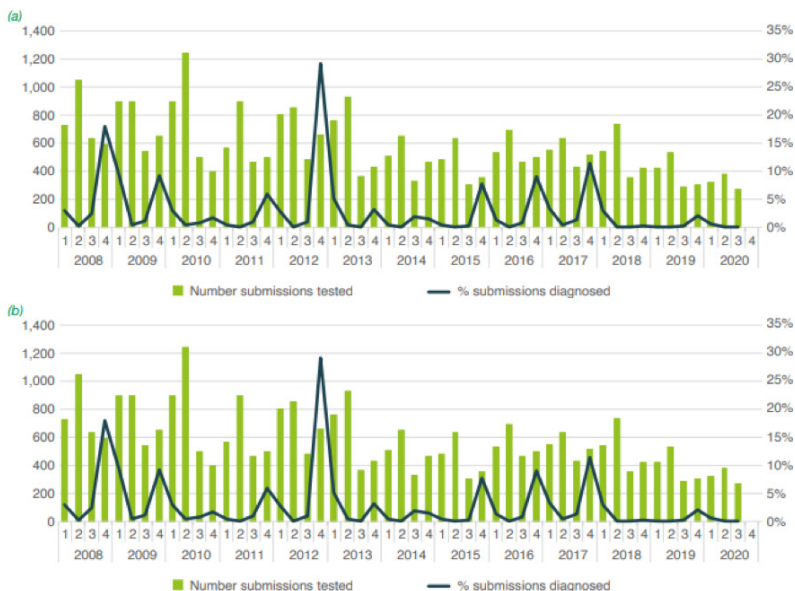


Figure 23. Seasonal patterns of liver fluke disease since 2008 in a) acute and b) chronic fasciolosis in sheep
Source: APHA

Why test for liver fluke?

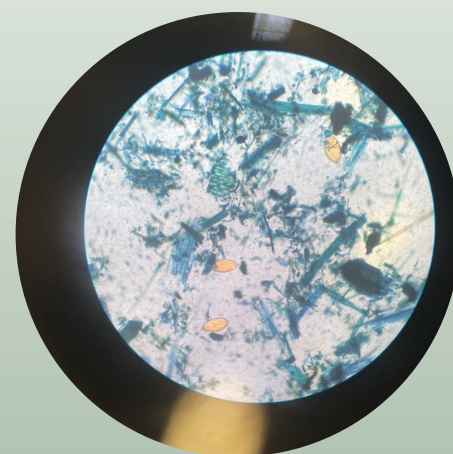
As already mentioned, the incidence of liver fluke is very farm specific and also depends on prevailing weather conditions. This means that the need for, and timing of, treatments for liver fluke can vary from year to year. We can use diagnostic testing to help assess liver fluke risk on your farm, so that treatments are targeted at times when liver fluke are active in your flock.

Whilst preventative treatments for liver fluke can be used to manage the disease, recently there has been evidence that resistance is developing to some of the fluke treatments (most notably triclabendazole). Since triclabendazole is the only product available to us that effectively kills the early, immature stages of liver fluke, we need to use this product carefully, and only when necessary; diagnostic testing is key to this.

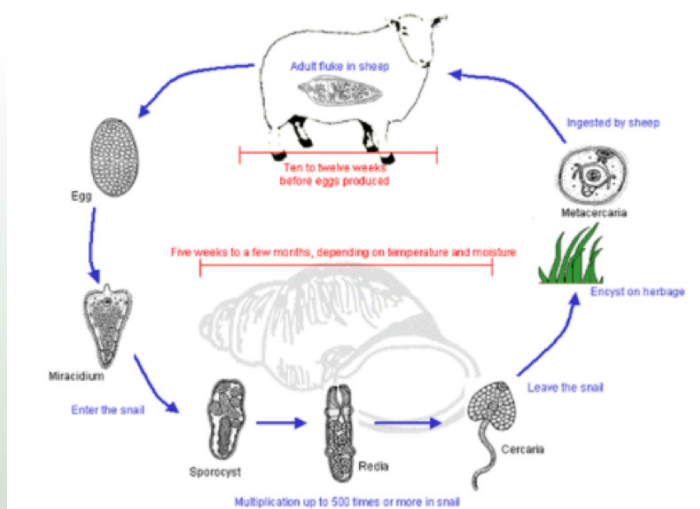
Another use for diagnostic tests is as part of the quarantine protocol for purchased sheep. Quarantine treatments are important to make sure you don't buy in liver fluke (if your farm is currently fluke free) or anthelmintic resistant strains of liver fluke.

What tests are available and how are they best used?

We would be happy to discuss which test will be most appropriate for your flock at any time point in the year, and also how to interpret the data gained from any of these tests. The right test from an appropriate age of stock needs to be used at the right time to provide useful information. A combination of tests throughout the year will be required to build an accurate farm picture.



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Source: SCOPS www.scops.org.uk

Until recently, being able to detect liver fluke in living sheep was only possible if there were adult fluke present by testing the sheep faeces for liver fluke eggs. The only other alternatives were post mortem examination to identify fluke in the liver, damage to the liver, and abattoir return reports. More recently, further tests have been developed and we can now detect liver fluke in sheep from 2-4 weeks post infection but, the right test needs to be used at the right time, focusing on the stages of liver fluke that are likely to be present in the animal.

Diagnostic Test	Sample Type	Application	Comments
Abattoir data	Slaughtered Lambs	All stages of liver fluke can be identified. Direct indication of liver fluke on your farm	Can be used as a treatment indicator for acute fluke risk in the autumn from 1st season grazing lambs
Post mortem examination	Dead sheep	All stages of liver fluke can be identified. Examination of the liver will provide evidence of liver damage due to migrating fluke, the presence of liver fluke within the liver or bile ducts	Never waste a dead sheep! Checking the liver provides valuable evidence regarding the presence of liver fluke on your farm.
Liver fluke serology	Blood Sample	Can detect liver fluke from 2-4 weeks post infection. Liver fluke specific test Serial sampling of 1st season lambs during September to December can provide information regarding timing of the autumn prophylactic liver fluke dose for breeding ewes and also the need for liver fluke treatment of store lambs	If used as a treatment timing indicator for breeding stock, the lambs tested must graze similar fluke risk pasture to the adults. Antibodies remain in the blood stream for several months after infection or successful treatment.
Coproantigen ELISA	Faeces	Can detect liver fluke from approx. 7 weeks post infection. Liver fluke specific test Indicates the presence of active liver fluke infection when positive	Does not detect early stages of liver fluke. Can be used to check flukicide efficacy if resistance suspected.
Fluke egg detection	Faeces	Can detect the presence of adult liver fluke. Rumen fluke may also be identified.	Only identifies the presence of adult fluke. The number of eggs shed by liver fluke on a daily basis varies. Low fluke burdens low number of eggs will be present. Fluke egg count reduction test can be carried out if anthelmintic resistance is suspected

When should I test for liver fluke?

As we have mentioned, each year is different for liver fluke risk, and accurate prediction of the peak risk time for liver fluke is difficult. The treatments for liver fluke have long withhold periods but don't have a persistent action against fluke. Treatment too early, when no liver fluke burden is present offers no protection for later in the grazing season. It can mean a repeat treatment will be needed which can increase the chance of your flock developing resistance, as well as being a waste of money. Abattoir returns can provide valuable information here but, if these are not available, we can discuss suitable testing options with you.

Blood testing 6-10 sentinel lambs (first season grazing lambs, grazing similar risk pasture to the main flock) on a monthly basis from September to December (or when they test

positive) to identify when they are first exposed to liver fluke provides an accurate indicator of when the main flock requires the autumn fluke treatment when taken into account with other liver fluke risk factors.

Blood testing store lambs can be a cost effective way to identify whether liver fluke treatment is required. Meat withholds for liver fluke treatments are long, at a time when many lambs are close to being fit for slaughter. Sampling gives you the knowledge that if the lambs are disease free liver fluke will not impact their growth rates.

If you have any questions or concerns about liver fluke, give us a call.



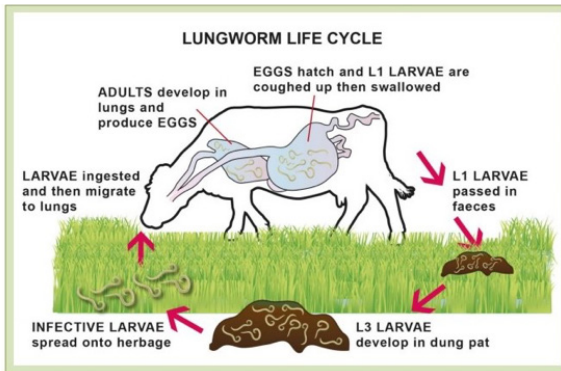
Lungworm in cattle

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Lungworm infection in cattle (also known as Parasitic Bronchitis, Husk or Hoose) is a frequently encountered problem in late summer and autumn across the UK and Ireland. It is caused by a nematode worm called *Dictyocaulus viviparus* infecting the lungs causing coughing.

Lungworm has a significant economic and welfare impact, with outbreaks in beef and dairy youngstock potentially having a high mortality rate. Losses in growing cattle can be £50-100 per head. Infection in adult animals can also occur with losses of 4kg/cow/day of milk yield in the dairy herd reported. It is estimated that lungworm costs the UK farming industry £5.2 million per year.

The peak of lungworm diagnosis occurs in September, with most cases occurring between July and November.



Lungworm larvae are passed into faeces and then, in as little as a few days or up to a few weeks later (based on temperature), become infective larvae which leave the dung pat. They can then be scattered by events such as heavy rain, fungal spore bursts, or even on-farm machinery and wildlife. These infective larvae are then eaten and migrate through the gut wall, ending up in the lungs about a week after infection. Here they become adults which produce eggs. These eggs hatch into larvae, are coughed up, and then swallowed, ending up back in the faeces.

One female lungworm can produce 25,000 eggs per day meaning that an infected calf can produce 2 million larvae per day. Needless to say, this can result in infection building up, very quickly, on pasture

Signs of Lungworm

- Coughing animals at grass (or at housing, after grazing period)
- Body Condition loss and failure to thrive
- Signs of pneumonia (heavy breathing, nasal discharge, occasionally coughing up worms)
- Milk drop (average 4kg/cow/day)
- Sudden exposure to heavily contaminated pastures can result in severe breathing difficulties and a high death rate

Coughing is caused by lungworm in the small airways causing irritation, mucous production, and secondary bacterial infections. Outbreaks in youngstock can occur when build-up of infective larvae occurs rapidly or previously uninfected animals (naïve) are introduced to heavily contaminated pastures.

Long acting wormers wearing off during extended grazing seasons can also be a cause of outbreaks in the autumn. Immunity builds up after infection. However, it relies on ongoing exposure. Adult cattle can have severe outbreaks of lungworm, particularly if there are concurrent diseases such as IBR.

Diagnosis is often made on veterinary post mortem by finding lungworm larvae in the airways.

Dung samples can be used to detect larvae if you suspect lungworm in your animals. We can also use blood and bulk milk to aid making a diagnosis.



Photo of lungworm collected from post mortem Credit Steve Raphael Academy Vet Centre

Treatment and prevention

All classes of wormers treat lungworm and there have been no cases of resistance documented in Europe. Cases of lack of efficacy on some pour-on wormers have been reported but, these may have been due to pour-on being licked off by other cattle rather than resistance. Some classes of wormers (Group 3 ML) have some persistency. Using group 3 LV wormers may help to stop a reaction to mass larval death by killing them slower or paralysing them, so could be considered if a heavy infection is suspected. Heavy infection and mass die off of worms are often fatal with supportive treatments such as anti-inflammatories and antibiotics required. Give us a call if you think this may be the case on your farm.

Control of gutworms usually controls lungworm as well however if long acting wormers have been used and the effects are running out at the end of the grazing season infection can be unpredictable.

Treatment principles

Minimise stress and treat with a suitable wormer as soon as possible. Care should be taken to observe the appropriate withdrawal periods particularly in the dairy herd. Antibiotics and painkillers may also be required in severe cases.

An effective live attenuated vaccine is available and is given as an oral dose. It can be given from 8 weeks old and requires two doses 4 weeks apart and then waiting 2 weeks before turn out. Because the vaccine contains real worms it is very important not to use wormers on the animals 8 weeks before the first dose and 2 weeks after the second dose otherwise the vaccine may not work. We can help you plan for the vaccine.

Biosecurity considerations

It is worth bearing in mind that lungworm can survive on the pasture over winter and could be spread in contaminated slurry. Occasionally, animals can become carriers over winter, which can then start to shed lungworm onto the pasture in the following grazing season.

If there is no previous history of lungworm, any bought-in animals should have a quarantine wormer. Likewise, if previously unaffected animals are introduced into a herd with a history of lungworm, then vaccination would be useful to prevent disease.

Lungworm infection should be considered in any age of animal that has a history of grazing with failure to thrive and/or coughing. In herd's affected careful health planning for future years including grazing, worming and vaccination strategies can help to prevent losses and improve health.

Give us a call for help with your herd health plan.