Liver fluke control - know your way around...

- Liver fluke parasite
- Liver fluke life cycle
- Clinical signs of liver fluke
- Diagnosis of liver fluke
- The control and management of liver fluke

The RIGHT approach – follow the 5 R’s

- The RIGHT product for the type of worm
- The RIGHT animal
- The RIGHT time
  - The RIGHT dose rate
  - Administered in the RIGHT way

COWS also has input from farmers and independent consultants

The COWS guide to liver fluke

Do you know your way around liver fluke?

COWS
Control Of Worms Sustainably
Promoting sustainable control of cattle parasites

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Getting to know your way around liver fluke

Fluke infection is estimated to cost the UK agricultural industry up to £300 million a year. With little evidence that cattle can develop immunity to fluke infection, now is the time to find out all you need to know about how to effectively control this parasite.

Getting to know the liver fluke parasite

In this UK, the most significant liver fluke is Fasciola hepatica ingested by which cattle and sheep are the main hosts. Mature Fasciola hepatica live in the bile ducts and can cause enterohepatic shunting, which can lead to chronic disease causing loss of appetite, weight loss, and in severe cases, death.

1. Each minute fluke enters the small intestine, where it undergoes two developmental stages that lead to the production of infective cercariae. Under appropriate conditions, a single miracidium can parasitize hundreds of individuals.

2. Cercariae emerge from the snail when temperature and moisture levels are suitable, and migrate to the host. Infection occurs when small habitats form cysts known as metacercariae.

3. Metacercariae can remain viable on pastures for several months. When eaten by grazing livestock, the cysts are swallowed and hatch, eventually burrowing through the gut and into the liver.

The liver fluke life cycle

The life cycle of liver fluke involves an intermediate host, a snail. Cattle, sheep, and many free-living stages of the fluke.

Liver fluke infection is seasonal, with a peak of infective cysts typically seen on pastures in late summer and early autumn, leading to the risk of disease in cattle over the winter. This seasonal pattern is due to the free-living stages of liver fluke, and the host stalls only being active at environmental temperatures greater than 10°C. But, it should be noted that infective cysts can be present on pastures all year round due to their ability to survive for up to a year or more when conditions are right.

Getting to know the liver fluke life cycle

1. Adult fluke lay eggs in the host's bile ducts, which are passed out in the dung of infected cattle.

2. At suitable temperatures, above 10°C, fluke eggs will develop and hatch releasing miracidia. The larval stages that look like microscopic tadpoles, which seem to their preferred host, the mud snail.

The liver fluke life cycle

The severity of the disease is related to the number of fluke parasites that are ingested at grazing and which successfully colonize the host. Cattle infected with a lower number of fluke parasites may not show clinical signs, but performance may still be reduced.

Sub clinical signs:

- Feed intake, milk yield, and milk solids yield and quality
- Reduced feed conversion efficiency, poor growth, and reduced carcass values

Clinical signs:

- Beef and dairy cattle may experience weight loss, loss of condition, and anaemia caused by liver damage and blood feeding activity of adult flukes in the bile ducts

Whether subclinical or clinical infections are seen, both will have a significant impact on productivity, and increase an animal’s susceptibility to other infections.

Fecal egg sample analysis can help detect if liver fluke is present in cattle

*Summary of different flukicides and active ingredients licensed for use in cattle

<table>
<thead>
<tr>
<th>Active ingredient</th>
<th>Administration route</th>
<th>Stage of fluke killed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triclabendazole</td>
<td>Oral</td>
<td>2 weeks onwards</td>
</tr>
<tr>
<td>Oxamnique</td>
<td>Oral</td>
<td>4-8 weeks onwards</td>
</tr>
<tr>
<td>Clorsulon</td>
<td>Oral</td>
<td>7 weeks onwards</td>
</tr>
<tr>
<td>Niclosamide</td>
<td>Oral</td>
<td>8 weeks onwards</td>
</tr>
<tr>
<td>Oxamnique</td>
<td>Oral</td>
<td>Adults only</td>
</tr>
<tr>
<td>Triclabendazole</td>
<td>Oral</td>
<td>Adults only</td>
</tr>
<tr>
<td>Albenizide</td>
<td>Oral</td>
<td>Adults only</td>
</tr>
</tbody>
</table>

Getting to know how to control and manage liver fluke

Liver fluke control plans should take into account hard fluke history, past treatments, the presence of high risk areas for small holdings, and time of year.

An effective control plan will include the use of flukicides to prevent damage to both beef and dairy herds. Prevention is key, as well as grazing strategies to avoid heavy fluke burdens.

Young stock and adult cattle should be treated after housing, and animals kept outdoors may require additional treatments depending on the risk.

Getting to know how to diagnose liver fluke

Diagnosis can be performed at herd level to check for resistance, or at an individual level if there is concern about clinical signs in a particular animal.

Methods of diagnostic include:

1. Feed back from abattoirs - those will identify if liver flukes are present in boroughs where clinical signs are seen

2. Fecal egg counts - these will confirm the presence of adult liver flukes, but those infected (i.e., no eggs detected in the presence of infection) can result from the presence of a predominantly larval population of fluke, intermittent egg-shedding by adult worms or low sensitivity of the methodology

3. Antibody detection (ELISA tests) - bulk milk tests and individual milk samples can be used for analysis, which helps identify if cattle have been exposed to liver flukes over the past months

Getting to know how to control the exposure to high fluke areas

Reduce the exposure to high fluke areas

Farmers should discuss product choices with their vet, suitably qualified person (SQP), farm advisor, or veterinary pharmacist as part of their herd health plan.

Flukicides have no persistent activity and allowing recently treated cattle onto infected pastures re-exposes them to the risk of infection.

Turning cattle onto low risk pastures or feeding off test and keep areas within a field can help reduce the risk of infection. There is also the risk that freshly cut grass could be a potential source of infection if harvested from fluke contaminated pastures.

When treating cattle with antiverticilliasis, always ensure the EOWS 35’s guidelines are followed. Wormers suitable to be taken on site, and re-treatment time frames should be complied with. Be aware that certain products cannot be used in animals destined to produce milk for human consumption.

Quarantine of incoming cattle is important to help prevent the introduction of liver fluke onto fluke-free farms that have potential small holdings, and to prevent the introduction of tick-borne flukes resistant liver fluke populations onto farms with the risk of resistance.

When developing a parasite control plan, make sure you speak to your vet, SQP, farm advisor or veterinary pharmacist.