

## Liver Fluke Disease

Frank Hynes

*Sheep Specialist, Animal and Grassland Research & Innovation Centre,  
Teagasc, Mellows Campus, Athenry. Co. Galway.*

Is liver fluke costing you money? You don't get paid for damaged livers. You have the added cost of mortality and poor thrive. Fertility of ewes can be affected as well as milk yield. This all leads to reduced output and less income. It also renders sheep more susceptible to other diseases as well as having costs associated with treatment.

### Weather & Life Cycle

Liver fluke is caused by a flat leaf-like worm called *Fasciola hepatica*. An intermediate host, the mud-snail (*Lymnaea truncatula*) is also involved. The risk of liver fluke disease is closely linked with summer rainfall. High rainfall throughout the year and mild winters provide the optimum environment for the mud snail. Details of the life cycle are described in Figure 1.



**These wet areas provide an ideal habitat for the mud-snail, the intermediate host of liver fluke.**



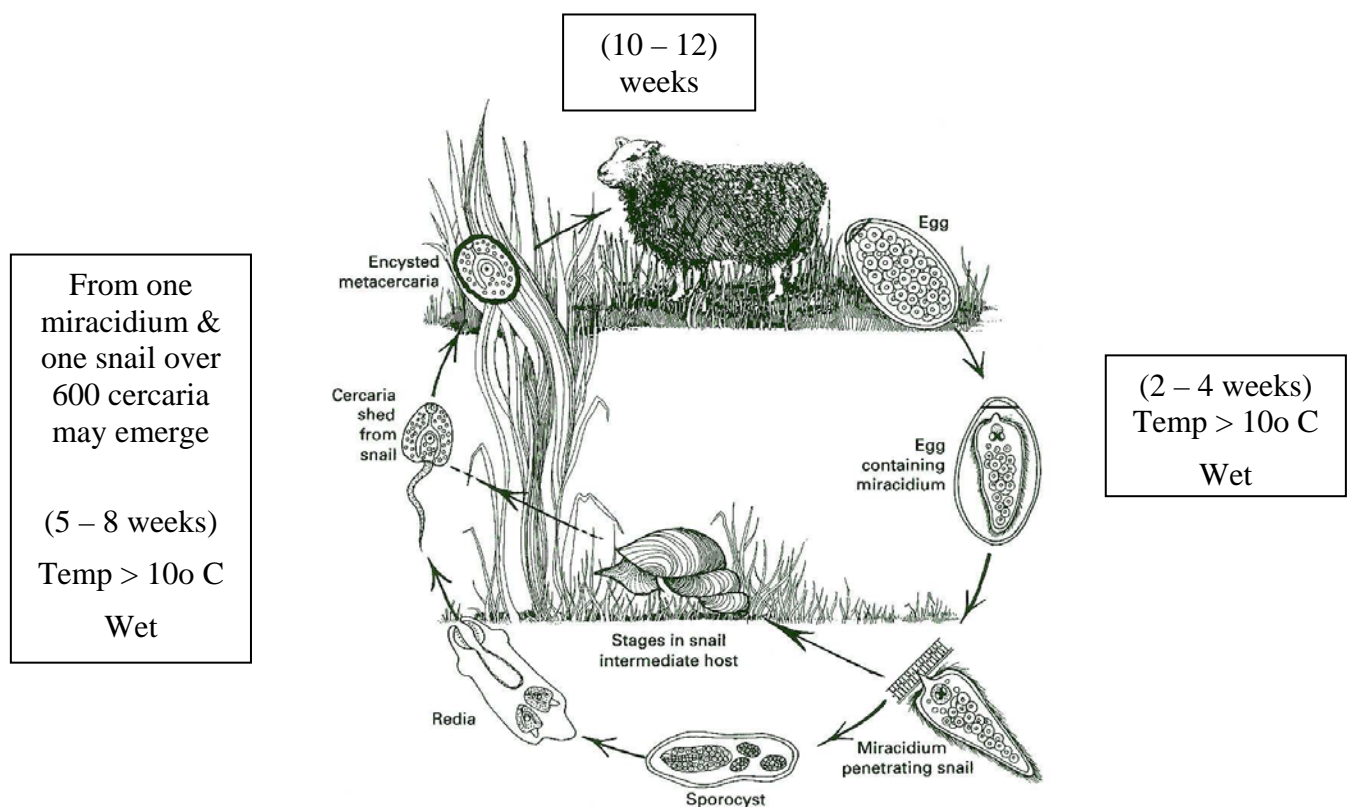
**Left: Mud snails (*Lymnaea truncatula*)**

**Right: Adult mature Fluke**

### Identification of Problem

**Acute fluke** occurs as a result of large numbers of immature flukes burrowing through the sheep's liver and can lead to rapid death.

**Chronic fluke** arises due to more long-term exposure to infective larvae. The fluke develop in the liver and bile ducts and cause damage to the liver as well as feeding on blood. Clinical signs of chronic fluke include anaemia and loss of condition. Paleness around the eyes and the gums may indicate anaemia associated with liver fluke. There may be abdominal pain & swelling such as ‘bottle jaw’ due to retained fluids. Faecal egg counts can be used as an objective test for fluke. Fluke eggs in the faeces indicate the presence of mature adult fluke. However, as fluke egg counts tend to be low, they are less reliable than in the case of stomach worms as a measure of the burden of fluke. They are only useful as an indication of chronic and are not useful as a test for acute fluke. The examination of the livers of slaughtered animals is a good check for liver fluke. Any unexplained death should be investigated by means of post mortem. Fresh carcasses can be referred to the nearest veterinary laboratory. This must be arranged through the flock veterinary surgeon.



**Figure 1. Liver Fluke life cycle – (From Mike Taylor, (2009), CPD Seminar on Liver Fluke**

Treatment of the problem really needs to be farm specific. Flukicides can be divided into a number of groups according to active ingredient, as outlined in Table 1. Examples of products under each group are presented in Table 2. Triclabendazole is the only group that has activity against early immature fluke. However there have been cases of resistance to these products. Closantel, Nitroxylin, and Rafoxanide are also active against immature fluke over 6 weeks old. Products

containing Oxyclozanide and Albendazole (given at 1.5 times the worm dose) are only active against adult fluke. When animals are to be slaughtered it is critical to be aware of withdrawal periods.

The choice of product should be based on the type of infection, in particular the stage of development of the fluke. If diagnosis indicates a large presence of immature fluke you need to treat with a product effective against immature stages. In this instance, it may be appropriate to opt for a Triclabendazole product. This may well be the case for ewes that have been out-wintered and have been grazing pastures contaminated with encysted metacercariae. On the other hand, if sheep have not had access to this type of pasture for the past 8 to 10 weeks and yet are showing signs of the disease, they will not have immature fluke. This may be the case with ewes that were housed two months earlier. They may be infected with adult fluke if they have not been adequately treated or not dosed at all. They may now benefit from a dose effective against adult fluke. The best advice is to consult your veterinary surgeon to draw up a treatment programme appropriate to your farm.

**Table 1. Efficacy of drugs at recommended dose rate against *Fasciola hepatica* in sheep**

Flukicide (Active ingredient)	Liver fluke – stage of development in weeks												
	2	3	4	5	6	7	8	9	10	11	12	13	14
Albendazole									50-70%		80 – 99 %		
Oxyclozanide													
Nitroxynil						50 – 90 %			91 – 99 %				
Rafoxanide						50 – 90 %			91 – 99 %				
Closantel		23- 73 %		91	91 – 95 %				97 – 100 %				
Triclabendazole	90-99 %		99 – 99.9%										

*Adapted from presentation by B. Good, Teagasc, Athenry, October 2009*

### Protocol for dealing with purchased sheep

- On arrival at the farm all animals should be quarantined/isolated for period at least 3 weeks
- Fencing should be adequate to ensure containment of the isolated sheep
- All added sheep should be treated on arrival and again in 6-8 weeks with a flukicide effective against immature and mature fluke

## Withdrawal dates

The importance of adhering to withdrawal dates must be stressed. Particular attention is needed with lambs approaching slaughter weights. If there is a possibility that the animal will be slaughtered before the expiry of the drug withdrawal period the dose should not be given or an alternative product could be used.

**Table 2. Examples of products available containing each active ingredient, with company name and withdrawal dates (other products are available)**

Active Ingredient	Examples of products	Company	Withdrawal time - days
<b>Albendazole</b> ( <i>adult fluke</i> )	Albex 10%	Chanelle Animal Health	10
	Trimazole 10%	Univet	4
	Valbazen 10%	Pfizer	10
<b>Oxyclosanide</b> ( <i>adult fluke</i> )	Zanil	Intervet Schering Plough	28
	Nilzan	Intervet Schering Plough	28
<b>Nitroxynil</b> ( <i>adult and immature fluke</i> )	Trodax 34%	Merial Animal Health	60
<b>Rafoxanide</b> ( <i>adult and immature fluke from 3-4 wks</i> )	Ridafluke	Chanelle	60
	Flukex 3%	Univet	60
	Curafloke	Univet	60
<b>Closantel</b> ( <i>adult and immature fluke from 3-4 wks</i> )	Flukiver 5% ( <i>dose / injection</i> )	Jansen	42 /56
	Supaverm (Fluke and worm)	Jansen	42
	Duotech (Fluke and worm)	Norbrook	14
<b>Triclabendazole</b> ( <i>from early immatures to adult fluke</i> )	Fasinex	Novartis	55
	Tribex	Chanelle	56
	Fasifree	Osmonds	56

## Summary

Liver fluke has a complex life cycle. It causes serious loss both from an animal welfare and from an economic point of view. Treatment needs to be farm specific. You should make use of whatever information you have to identify any possible problem. Then it is important to draw up a treatment programme with veterinary advice.