

DON'T LEAVE LIVER FLUKE TO CHANCE



*The sustainable guide to
liver fluke control in sheep
and cattle.*

ElancoTM

THE NEED FOR SUSTAINABLE LIVER FLUKE CONTROL

Liver fluke – a growing threat

Millions of pounds are lost every year by livestock producers due to liver fluke with the cost of disease per affected animal noted as £6 per lamb and £90 per calf.¹

Now spreading to new regions liver fluke can increasingly be found throughout the UK, largely due to the impact of climate change. All these factors favour liver fluke:

- Warmer temperatures throughout the year.
- Increased rainfall in autumn and winter.
- Dry eastern areas becoming wetter. East Anglia and south east Scotland can no longer be regarded as safe.
- Flooding moving snails infected by the parasite into new areas.
- The grass growing season increasing by 4 weeks over the past 40 years.
- Increased movement of liver fluke infected animals around the country.
- Resistance to some commonly used flukicides.

A seasonal challenge

Due to this lengthening of seasons, and the impact of warm, wet weather on the liver fluke lifecycle, the liver fluke challenge can now be higher for a longer period with the risk of high fluke burdens in both sheep and cattle extending throughout the year if not treated effectively.



A complex lifecycle – allows vast multiplication

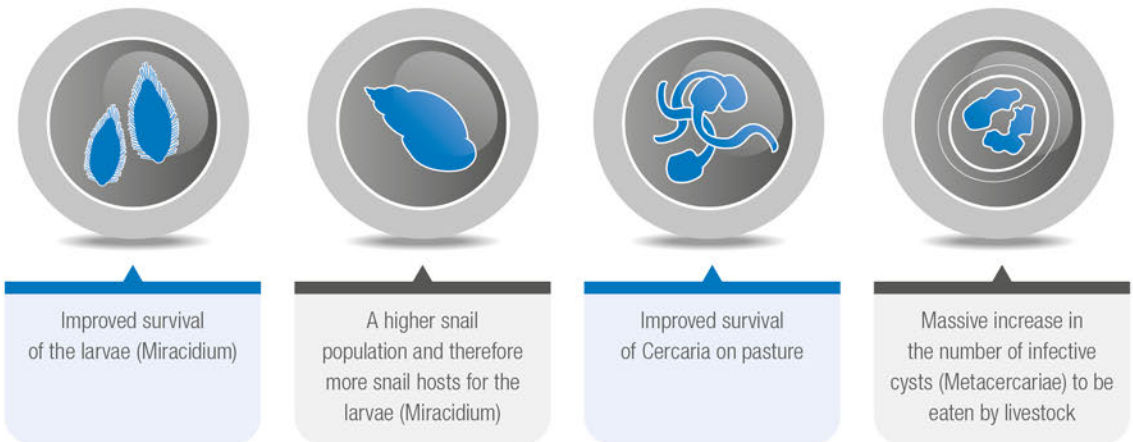
Inside the animal:

- In 10-12 weeks the liver fluke develop through 3 stages – early immature, immature and adult.
- All stages damage the liver and can cause clinical disease and production losses.
- An adult liver fluke, on reaching the bile duct, can lay up to 50,000 eggs every day.

On the pasture:

- Liver fluke eggs, passed in faeces, start to develop when temperatures reach 10°C, with most of the eggs deposited over the winter hatching in May and June.
- The larvae (*Miracidium*) once hatched seek out mud snails in which to continue their development. Those that are successful then take between 5 weeks and a few months to multiply in number by several hundred times before final stage larvae *Cercaria* are released from the snail.
- *Cercaria* form infective cysts (*Metacercariae*) on grass which are consumed by animals such as sheep and cattle.

‘Warm & wet’ escalates the liver fluke burden by:



LIVER FLUKE – THREATENING PROFITABILITY

The economic impact

The economic impact of liver fluke can be devastating and it is estimated that each case of liver fluke costs the farmer £25-30 (€35-€42) per infected sheep.¹ Farmers can lose:



The rise of resistance

Resistance to triclabendazole has been identified on a number of farms. To identify resistance problems early, it is recommended to check that treatments have been effective. Once liver fluke have become resistant to an active ingredient, and can survive exposure to a treatment that would normally kill them, there is no evidence to suggest they will return to susceptibility.

As individuals, and as an industry, we can't afford to allow this to happen. To achieve effective control now – and to preserve the efficacy of the existing active ingredients for the future – we need to adopt a new approach to liver fluke management.

This can be achieved by concentrating on 4 key elements. *See over.*

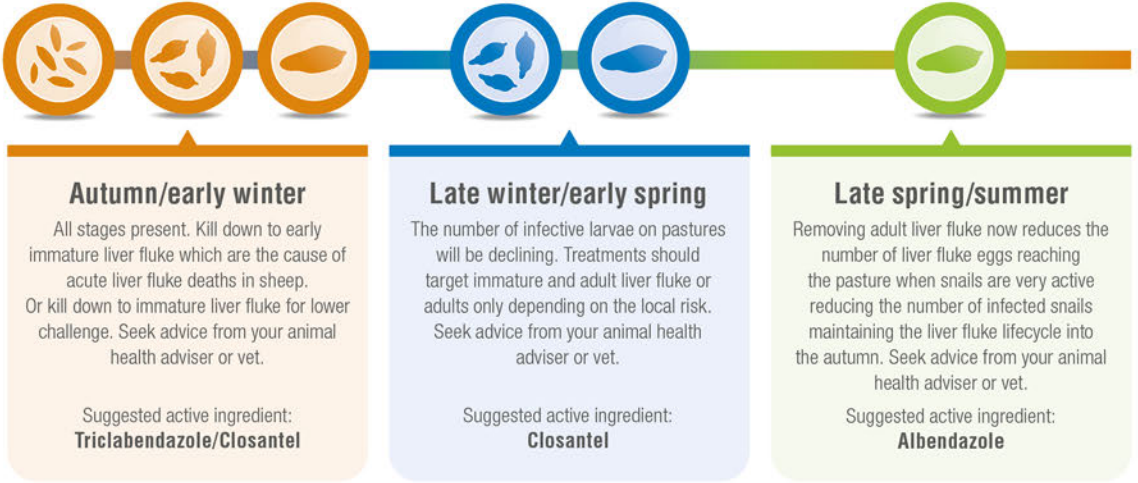
Understanding the risk

Even when the fluke forecast is for low risk, this does not mean there is no risk. The fluke risk depends on the habitat on the individual farm, and on some farms in a dry season when the regional risk is low, the available grazing will be concentrated in the wetter areas of the farm where fluke will still be present.

Even low levels of fluke which don't cause obvious clinical disease, will still have a significant impact on animal health and productivity. Don't get caught out, when the forecast is for low risk, make sure you investigate the fluke challenge on your own farm.

Controlling the right stages of liver fluke, at the right time, with the right product.

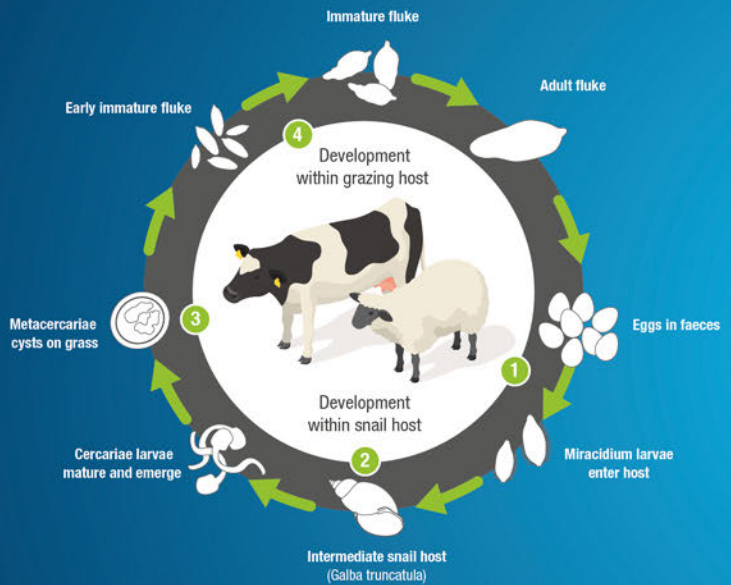
Seasonal, strategic liver fluke treatments can help reduce the risk of resistance developing and the levels of infective cysts (*Metacercaria*) on pastures. The suggested treatment timings are for guidance only. Levels of risk in your area, or on your farm, can best be determined by monitoring infection status of your animals on your farm. Speak to your veterinary surgeon or flock health adviser to develop an effective monitoring program for your farm.



A SUSTAINABLE WHOLE FARM APPROACH

4 elements of sustainable liver fluke control

Breaking the life cycle, to achieve a new approach to sustainable liver fluke control.



- 1** Pasture protection from liver fluke egg contamination
- 2** Pasture management to reduce the snail population
- 3** Grazing management to reduce the level of challenge
- 4** Strategic treatment of 'at risk' animals – the right product at the right time



The 4 elements of sustainable liver fluke control

1. Pasture protection

Treating for liver fluke in the late spring/summer or before turnout for in-wintered cattle to remove remaining adult liver fluke thereby reducing the number of liver fluke eggs reaching the pasture at a time when snails are active. This reduces the number of infected snails that maintain the liver fluke lifecycle into the autumn.



2. Pasture management

Managing pasture to minimise snail habitats and reduce snail numbers which in turn reduces the number of infective stages released onto pasture. Measures to consider include:

- Fix leaky troughs.
- Avoid poaching ground.
- Maintain effective drainage.

3. Grazing management

The infective stages of liver fluke will only be found where snails have been present. Grazing management therefore can reduce livestock's exposure to snail habitats and infective cysts and so reduce/limit the number of infective cysts (*Metacercaria*) ingested by grazing animals.

- Wet, boggy areas are typically high risk.
- Avoid grazing high risk areas at high risk times of the year (late autumn and winter depending on weather patterns).
- Use of temporary/electric fencing is useful to prevent access to high risk areas.

4. Strategic treatments for at risk animals

Treating animals with flukicides is an essential part of maintaining good animal welfare and performance. As the liver fluke season is now more variable and covers a larger part of the year, the traditional set time of treating in the autumn/winter is unlikely to give full control. Therefore, a more strategic, targeted approach should be implemented.

- For each treatment, select the product that will kill the stages of liver fluke that are likely to be present at that time.
- Use different active ingredients as appropriate at the right time throughout the liver fluke season to reduce the risk of resistance developing to any one active.

Sheep Flukicide Efficacy

As not all active ingredients kill all stages of liver fluke, knowing which active ingredient kills which stages is important to ensure you choose the correct product for the stages of fluke likely to be present.

To avoid overuse of any single active and to reduce the risk of resistance development, targeting the right stages of liver fluke at the right time of year with the right product is essential.

SHEEP FLUKE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
PASTURE RISK	MEDIUM			LOW					HIGH			
Fluke stages to target	Immature fluke & adult fluke			Adult fluke					All stages, from early immature fluke			
Which active? Find out why	Closantel Nitroxylin			Ricobendazole Albendazole Oxyclozanide					Triclabendazole			
Elanco Products												



*Combinex, Fasimec Duo and Supaverem are combination products to be used when treatment for liver fluke and worms is required at the same time

Quarantine treatment



Always follow the SCOPS guidelines on quarantine treatment (see www.scops.org.uk)

- Give bought-in stock a quarantine flukicide dose.
- Whilst treatment with triclabendazole will remove a very high proportion of susceptible liver fluke of all stages it will not remove triclabendazole resistant liver fluke.
- If sheep are infected with early immature liver fluke, treatment with closantel will have to be repeated after the immatures are old enough to be killed by these products. Consider the use of two doses of closantel given 6 weeks apart.
- Treatment with more than one product with activity against immature liver fluke (closantel or triclabendazole) will reduce the risk of introducing liver fluke with resistance to any one product. However, it is not recommended that two products are used at the same time, (seek advice from an animal health adviser or veterinary surgeon).
- Keep treated animals away from snail habitats (wet, boggy areas) for 3 weeks as treated sheep can still shed eggs for up to 3 weeks.

Coproantigen testing and Faecal Egg Count (FEC) monitoring can be used to determine the need for further treatments.

Cattle Flukicide Efficacy

Liver fluke is not host specific and will cause disease and production losses in cattle as well as in sheep. Food Standards Agency (FSA) data from 2012 shows that 22% of cattle livers⁵ were condemned due to liver fluke infection.

Because cattle have a much larger liver than sheep, clinical signs of acute disease are not commonly seen. However, all three stages of liver fluke (early immature, immature and adult) are known to cause liver damage and decrease feed intakes and efficiency of utilisation.³

Impact on dairy cows:

Liver fluke can reduce the fat content and decrease milk yield by 3.8 to 15.2 percent in affected animals.⁶

Impact on suckler cows:

Animals with 1-10 fluke present in their liver at slaughter took on average 31 days longer to reach slaughter weight, while animals with more than 10 took on average 77 days longer to finish.⁷

The four key elements of an effective liver fluke control plan apply equally to cattle. The majority of cattle are treated at, or around, housing time. When there is likely to be a varying number of different stages of fluke in the liver. It is therefore important to treat using the right active at the right time after housing depending on which stages of fluke are killed by the product.

CATTLE FLUKE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
PASTURE RISK	MEDIUM			LOW				HIGH				
Fluke stages to target	Immature fluke & adult fluke			Adult fluke				All stages, from early immature fluke				
Which active? Find out why	Clorsantel Nitroxylnil			Clorsulon Albendazole Oxyclozanide				Triclabendazole Oral				
Elanco Products												

CATTLE PRODUCTS



- Contains triclabendazole, the only active ingredient to kill all 3 stages of liver fluke down to 2 weeks of age (early immature) in cattle.
- Ideal housing dose for cattle - recommended for use two weeks after housing.
- Approved for use in dairy cows in the dry period.
- Concentrated low volume formula for ease of administration.



- A combination flukicide and wormer treatment to be used when it's necessary to treat liver fluke and GI worms at the same time.
- Contains triclabendazole, the only active ingredient to kill all 3 stages of liver fluke.
- Plus Levamisole – a broad spectrum 2-LV (yellow) wormer.

THE SHEEP LIVER FLUKICIDE RANGE

The Elanco Liver Flukicide Range includes products based on a range of active ingredients: triclabendazole, closantel and albendazole to control liver fluke at all stages during its life cycle, appropriate to the time of year, liver fluke forecast and level of challenge in the target sheep.

The range also allows for easy rotation between active ingredients to reduce the risk of resistance developing and encourage effective and sustainable control.



AUTUMN/EARLY WINTER



- A combination flukicide and wormer to be used when it's necessary to treat liver fluke and GI worms at the same time.
- Contains triclabendazole, the only active ingredient to kill all 3 stages of liver fluke.
- Plus Ivermectin, a proven group 3-ML wormer that kills all major roundworms including larval stages and even white drench resistant worms.
- Fasimec Duo minimises liver damage caused by all 3 stages of liver fluke.



- A combination flukicide and wormer treatment to be used when it's necessary to treat liver fluke and GI worms at the same time.
- Contains triclabendazole, the only active ingredient to kill all 3 stages of liver fluke.
- Plus Levamisole – a broad spectrum 2-LV (yellow) wormer.
- Convenient control of the most commercially significant sheep endoparasites.



LATE WINTER/EARLY SPRING

Elanco

Flukiver™

- Contains closantel.
- Active against immature and adult liver fluke.
- For the control of chronic and sub-acute fascioliasis in sheep and lambs.
- Kills triclabendazole resistant liver fluke⁴.
- Also controls *Oestrus ovis* (Sheep Nasal Bot Fly) and inhibited, immature and adult stages of *Haemonchus contortus* (Barber Pole worm) including benzimidazole resistant strains.

Elanco

Supaverm™

- A combination flukicide and wormer to be used when it's necessary to treat liver fluke and GI worms at the same time.
- Contains closantel.
- Active against immature and adult liver fluke.
- For the control of chronic and sub-acute fascioliasis.
- Kills triclabendazole resistant liver fluke⁴.
- Plus mebendazole a 1-BZ class wormer.
- Controls gastrointestinal (GI) roundworms, lungworms, tapeworms and nasal bot.



LATE SPRING/SUMMER

RYCOBEN^{SC}

- Contains ricobendazole (albendazole oxide).
- Kills adult liver fluke at the higher dose rate of 1.5ml/5kg bodyweight
- Benzimidazole group 1 white drench.
- Treats and controls major parasitic worms in sheep.
 - o Broad spectrum roundworm (stomach and gut worm) control
 - o Spring/early summer *Nematodirus* control
 - o Tapeworms (*Moniezia*) and lungworms
- Licensed as an aid in the prevention of cobalt and selenium deficiency.



For more information on the Elanco™ portfolio visit:

www.farmanimalhealth.co.uk

References:

1. EBLEX 2013, Economic Impact of Health and Welfare Issues in Beef Cattle and Sheep in England
2. NADIS bulletin: liver fluke in sheep www.nadis.org.uk/bulletins/liver-fluke-control-in-sheep.aspx
3. Sykes AR, Coop, RL, Rushton, B (1980) Chronic subclinical fascioliasis in sheep: effects on food intake, food utilisation and blood constituents, Research in Veterinary Science Vol 28 No 1 pp 63-70.
4. Coles, G.G, Rhodes, A.C, Stafford, K.A., (2000) Activity of closantel against adult triclabendazole-resistant Fasciola hepatica. Veterinary Record 146, 504.
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6. Schweizer, G., Braun, U., Deplazes, P., Torgerson, P.R., 2005. Estimating the financial losses due to bovine fasciolosis in Switzerland. Vet. Rec. 157,188-193.
7. Estimation of the impact of Fasciola hepatica infection on time taken for UK beef cattle to reach slaughter weight Stella Mazeri, Gustaf Rydevik, Ian Handel, Barend M. deC. Bronsvort & Neil Sargison Nature/Scientific Reports | 7: 7319 | DOI:10.1038/s41598-017-07396-1.



RYCOBEN^{SC}

For further information call Elanco Animal Health on +44 (0)1256 353 131,
or write to Elanco UK AH Limited, Form 2, Bartley Way, Bartley Wood Business Park, Hook, RG27 9XA.

Combinex™ Oral Suspension contains 3.75% w/v levamisole hydrochloride and 5% w/v triclabendazole. Combinex® Cattle Oral Suspension contains 7.5 mg/ml levamisole hydrochloride and 12 mg/ml triclabendazole. Fasimec™ Duo 50 mg/ml + 1 mg/ml Oral Suspension for Sheep contains 50 mg/ml triclabendazole and 1 mg/ml ivermectin. Flukiver 5% w/v Oral Suspension contains 50mg/ml closantel. Supaverm Oral Suspension contains 5% w/v closantel and 7.5% w/v mebendazole. Rycoben™ SC for Sheep contains 2.5% w/v albendazole oxide (ricobendazole), 1.8% w/v cobalt sulphate and 0.097% w/v sodium selenate. Legal category: POM-VPS Further information can also be found in the Summary of Product Characteristics. **Advice should be sought from the medicine prescriber prior to use.** Combinex™, Fasimec™ Duo, Fasinex™, Flukiver™, Supaverm™, Rycoben™, Elanco and the diagonal bar logo are trademarks of Elanco or its affiliates. **Use medicines responsibly** (www.noah.co.uk/responsible). © 2023 Elanco or its affiliates. Date of review: July 2023. PM-UK-23-0302. RDP33778.

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Your Elanco liver fluke treatment schedule

Farmer name: _____

Farm address: _____

Postcode: _____

Prescriber name: _____

Company name: _____

Liver fluke (Recommendations will change from season to season depending on local weather conditions).

Season		Suggested time	Suggested treatment
	AUTUMN/ EARLY WINTER		
	LATE WINTER/ EARLY SPRING		
	LATE SPRING/ SUMMER		

Confirm with vet or animal health adviser at each dosing interval that the treatment schedule is still relevant based on current liver fluke incidence.

Comment/info: _____

