Zanil®
Fluke Drench for Dairy and Beef Cattle

3 DAY
Milk Withdrawal Flukicide

NO KNOWN RESISTANCE®

MSD Animal Health
Introduction

The risk of liver fluke is at its highest following wet summers and mild winters. And with the summer of 2012 being one of the wettest on record, recent environmental conditions have been perfect for the early stages of the liver fluke (*Fasciola hepatica*) and its intermediate host the mud snail. So much so that many farms have experienced unusually severe disease problems, as well as seeing cases in areas not traditionally associated with liver fluke.

The disease risks have also shifted on individual farms. A number of factors have combined to increase the threat of disease significantly:

- recent heavy rainfall has washed mud snails into areas on the edge of flood plains
- poaching by animals has created new snail habitats
- changing grazing practices
- large numbers of finished lambs on farms

Traditionally, the liver fluke life cycle was seasonal with infection of snails in the summer leading to the shedding of cysts and infection of stock in the autumn and winter. However, given changing weather patterns, the seasonality of the disease has broken down and some cases of acute fluke have even been reported in the spring.

Clinical signs

- Fasciolosis ranges in severity from a devastating disease in sheep to an asymptomatic infection in cattle. The course usually is determined by the number of metacercariae ingested over a short period

- In sheep, acute fasciolosis occurs seasonally and is manifest by a distended, painful abdomen; anaemia; and sudden death. Deaths can occur within 6 weeks of infection. The acute syndrome must be differentiated from ‘black disease’

- In subacute disease, survival is longer (7-10 weeks), even in cases with significant hepatic damage, but deaths occur due to haemorrhage and anaemia

- Chronic fasciolosis is seen in all seasons; signs include anaemia, unthriftness, submandibular oedema, and reduced milk production, but even heavily infected cattle may show no clinical signs. Heavy chronic infection is fatal in sheep

- Sheep do not appear to develop immunity to infection, and chronic liver damage is cumulative over several years. In cattle, there is evidence of reduced susceptibility after fibrosis of liver tissues and calcification of bile ducts
Liver fluke lifecycle

Adult fluke in the liver lay eggs which are then passed out in the faeces. These eggs will develop into miracidia within a number of weeks at temperatures over 10°C and when some moisture is present. These miracidia have a short lifespan and must come into contact with their intermediate host, the mud/pond snail *Galba* (previously *Lymnaea* *truncatula*), within a number of hours in order to develop further.

It takes a minimum of 6 weeks for the miracidia to develop within the mudsnail and to emerge as cercaria. These attach themselves to blades of grass where they encyst to form the infective metacercaria stage which are in turn ingested by cattle and/or sheep where they migrate through the gut wall to penetrate the liver.

It takes at least 6 weeks for the young flukes to get through the liver and into the bile ducts where they mature within about 4-6 weeks and start to be passed out as eggs in the faeces. The whole lifecycle of the liverfluke takes at least 16 weeks from ingestion of the miracidia to the excretion of fluke eggs in the faeces.
Effects on the liver

Immature, wandering flukes destroy liver tissue and cause haemorrhage. In acute fasciolosis, damage is extensive; the liver is enlarged and friable with fibrinous deposits on the capsule. Migratory tracts can be seen, and the surface has an uneven appearance. In chronic cases, cirrhosis develops.

Mature flukes damage the bile ducts, which become enlarged, or even cystic, and have thickened, fibrosed walls. In cattle, the duct walls become greatly thickened and often calcified. Flukes may be found in aberrant sites, eg, lungs. Mixed infections with *Fasciola magna* can be seen in cattle.

Effects of fluke on animal production

Fluke impacts significantly on livestock productivity. Liver fluke infections have been shown to cause significant reductions in lamb and calf weight gain, poor reproductive performance and low scanning results in both sheep and cattle. Precise financial figures are difficult to calculate and largely out of date, but it has been estimated that fluke can cost approximately £25-30 per sheep and £200 per head in dairy/beef cattle.²
Control of liver fluke

Warm wet weather leads to an increase in mud snails in the pasture and this in turn increases the possibility of cattle and sheep becoming infected with fluke. Marshy or water-logged pasture should be fenced off during the spring and summer to avoid animals coming in contact with fluke. Farmers should consider following their cattle or sheep to the factory to find out the status of fluke infestations in their animals.

The appropriate use of flukicides such as Zanil (oxyclozanide) offer farmers an effective disease management tool for fluke problems in sheep and cattle. Remember that adult animals do not develop an immunity to liver fluke.

Zanil is administered as an oral drench and is highly effective against adult flukes (which cause chronic disease) present in the bile duct of the animal. Zanil can be given to both cattle and sheep to control adult fluke at any time of year.

The inappropriate or overuse of some flukicides increases the risk of resistance developing and could ultimately result in ineffective therapy. However, there is no known liver fluke resistance to Zanil in the UK. Nevertheless, annual rotation of anthelmintics, plus post-treatment assessment of effectiveness of dosing should form part of a fluke control programme.

Care should be taken to avoid the following practices because they increase the risk of development of resistance and could ultimately result in ineffective therapy:

- Too frequent and repeated use of anthelmintics from the same class, over an extended period of time
- Underdosing, which may be due to underestimation of bodyweight, misadministration of the product, or lack of calibration of the dosing device (if any)

Three day withdrawal flukicide

Zanil can also be used in pregnant and lactating animals, and in dairy cattle, where the milk withholding period is 72 hours (3 days).

Use Zanil as part of a strategic fluke control plan.
Amounts to be administered and administration route

Give as an oral drench. Shake well before use. Dose according to bodyweight at the rate of 10 mg oxyclozanide per kg bodyweight (cattle) and 15 mg oxyclozanide per kg bodyweight (sheep).

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<thead>
<tr>
<th>Cattle: 3 ml per 10 kg bodyweight;</th>
<th>Sheep: 4.5 ml per 10 kg bodyweight</th>
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<td><strong>For example:</strong></td>
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<td><strong>Bodyweight</strong></td>
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<td>50 kg (approx 1 cwt)</td>
<td>10 kg (approx 22 lb)</td>
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<td>100 kg (approx 2 cwt)</td>
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<td>150 kg (approx 3 cwt)</td>
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<td>200 kg (approx 4 cwt)</td>
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Drench can be given in the feed to cattle which are fed individually. Pour the recommended dose onto their concentrate ration. Molasses or salt may be added for shy feeders. The bodyweight of animals should be assessed as accurately as possible before calculating the dose.

Withdrawal Period(s)

Animals intended for human consumption must not be slaughtered during treatment. Animals intended for human consumption may only be slaughtered from 28 days after the last treatment. Milk intended for human consumption may only be taken from cattle 72 hours after the last treatment.

The product is contraindicated for use in sheep producing milk for human consumption.

Warnings and precautions

Care should be taken when administering by dosing gun. When using, do not eat, drink or smoke. Wash splashes immediately from eyes and skin immediately. Take off any contaminated clothing immediately. Wash hands and exposed skin before meals and after work. Do not store above 25°C. Protect from light. Do not freeze. Due regard must always be given to the physical condition of animals undergoing treatment, particularly those in advanced pregnancy and/or under stress from adverse weather conditions, poor nutrition, penning, handling etc.

At normal oxyclozanide dose levels, cattle may show slight softening of the faeces with the occasional animal showing increased frequency of defaecation and transient inappetence. These effects are occasionally enhanced in animals suffering from severe liver damage and/or dehydration at the time of dosing. The effects of oxyclozanide overdose are dullness and some loosening of faeces in sheep and possible diarrhoea, inappetence and loss of weight in cattle. The product may be given to pregnant and lactating animals. In the absence of compatibility studies, this veterinary medicinal product must not be mixed with other veterinary medicinal products.

* There is no known liver fluke resistance to Zanil in the UK.

1. Proceedings of SCOPS liver fluke workshop, August 2012.

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