Liver fluke in cattle and sheep

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South Africa has two species of liver fluke: the giant liver fluke (*Fasciola gigantica*) and the common liver fluke (*Fasciola hepatica*) – the former is widespread, whereas the latter only occurs in certain areas.

The life cycle of the liver fluke is indirect. The giant liver fluke uses the freshwater snail *Lymnaea natalensis* as intermediate host, while the common liver fluke uses *Lymnaea truncatula*. *Lymnaea columella* can act as intermediate host for both the giant and common liver fluke.

Eggs are excreted in the ruminant's manure. Within 14 days, when conditions are favourable, the early larval stage (*miracidia*) develops. This stage penetrates the freshwater snail and develops to the larval stage (*cercaria*). The larvae then leave the freshwater snail, attach to plant material, encyst and develop to the infective larval stage (*metacercaria*). Infective larvae can survive on pasture for some time, depending on how long conditions remain favourable. The ruminant thus becomes infected upon ingesting the infective larvae.

The infective larva loses its capsule in the small intestine and develops into an immature liver fluke, penetrates through the small intestine's wall into the abdominal cavity, migrates to the liver and penetrates it where it proceeds to eat through the tissue. The adult liver fluke then settles in the bile ducts where it constantly secretes eggs. The eggs move from the bile ducts into the intestinal tract and are excreted in the faeces.

Disease signs and susceptibility

As the immature liver flukes migrate and eat through the liver, they cause damage and inflammation. Moderate blood loss can occur during migration due to the damage caused. Severe anaemia is usually seen when the liver flukes reach the adult stages, since adult liver flukes are aggressive blood suckers. Animals lose precious proteins, and growth and immunity are compromised. Animals can also die suddenly due to internal bleeding when damage is severe.

Clinical symptoms can range from acute death, anaemia and fairly rapid weight loss in sub-acute cases, to anaemia and chronic weight loss, fluid in the abdominal cavity and bottle jaw in chronic cases. Animals may die between 12 to 20 weeks after infection without treatment.

Cattle develop some resistance to liver fluke parasites, and adult liver flukes usually live for nine to 12 months in the bile ducts before being excreted. However, cattle can still be affected by infection. Sheep are much more susceptible to the effects of liver fluke and resistance is generally not as strong as in cattle.

Post-mortems will at times reveal severe bleeding in the abdominal cavity in acute cases. 'Blood tracts' can sometimes be observed when the liver is examined. In more chronic cases, thickened white regions of connective tissue (fibrosis), especially around the bile ducts, are visible. Secondary infection can also cause liver abscesses.

Strategic treatment and control

Treatment in late autumn to winter is applied to kill adult liver flukes, reduce egg excretion and prevent consequent pasture contamination. A product containing triclabendazole will effectively treat all stages of liver fluke from two weeks (common liver fluke) or three weeks (giant liver fluke) until the adult stage (12+ weeks). Triclabendazole is the only flukicide capable of doing this.

Spring treatment is applied to kill the stages that survived the winter treatment, and to prevent liver fluke egg excretion and thus pasture contamination. A product containing closantel or rafoxanide can be used, as well as triclabendazole.

Summer treatment can be applied in areas where liver fluke infection is a serious problem to prevent further infection with liver fluke eggs.

Tactical treatment is usually applied when clinical cases are seen. An agent such as triclabendazole that kills immature and adult stages must be applied. During a liver fluke outbreak, animals should preferably be moved to drier areas and treated every two to three weeks to prevent further clinical cases. Chemical control has also been suggested but is not recommended.