

in beef cattle muscles

These are responsible for organ as well as carcass condemnations at slaughter.

### Flukes

These are leaf-like and flattened worms found in the liver or in the rumen. All the flukes of importance to livestock have indirect life cycles. The adults are found in domestic animals and intermediate stages are in various species of water snails. There two main flukes that commonly infect domestic livestock:

#### (i) Liver fluke

This fluke infect the liver of sheep, goats and goats and are found in areas where there are marshy areas or slow moving permanent water courses. These are the most important of the flukes as they cause clinical disease or even death.



Liver flukes

#### How are animals infected by liver flukes?

The infectious stages are passed out by snails and form cysts on the grass which are then eaten by grazing animals. The young flukes form in the gut and then migrate through the animal's liver, causing damage. When present in large numbers, over a long time or when nutrition is poor, the animals can suffer a loss of condition and show signs of bottle jaw similar to that caused by the stomach worm. In very heavy infections, death can occur before any signs are apparent.

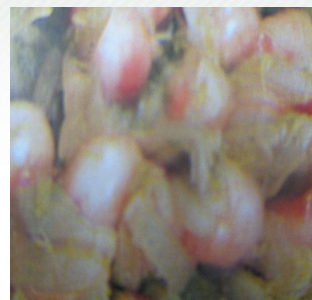
Adult flukes are found in the bile ducts of the livers of sheep, goats and cattle, appearing as leaf-like parasites. Such infected livers are condemned at slaughter.

#### (ii) Stomach flukes

These flukes are often found in large numbers in the rumen of sheep, goats, cattle and camels. Despite their large numbers, the adult worms are thought to cause little harm to the animal.



Preserved Stomach flukes



Stomach flukes attached to the inner lining of the rumen



Kenya Climate Smart Agriculture Project

Compiled by:

Nginyi, J.M., Keshura, R., Biwott, G and Ndung'u, D.

Design and Layout by: Odipo.S.

For further information contact:

Veterinary Research Institute, Muguga of KALRO, P.O. Box 32-00902 Kikuyu

Email: [Directorvsri@kalro.org](mailto:Directorvsri@kalro.org)

Telephone: 020 2020512

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## TYPES OF WORMS IN FARM ANIMALS



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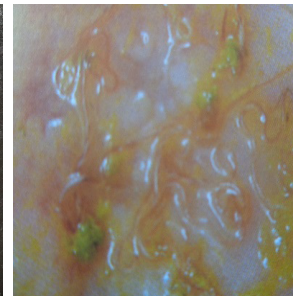


stomach, small intestine or large intestine. Some roundworms species live in other sites (such as the lungs, eyes among others) but in Kenya these other types are not of clinical or economic importance. While infections with roundworms may occasionally cause clinical disease or production loss in young cattle, they are rarely important in adult cattle. They are much more important as causes of losses amongst sheep, goats and camels.

The most important of the roundworms is the stomach worm which is resident in the last of the stomachs called abomasum. In freshly slaughtered animal it appears as red, blood filled worms attached to the wall of the stomach as shown.



*Preserved Round worms*



*Stomach worms in the abomasum of sheep*

It sucks a lot of blood, causing anaemia which is manifested as pale mucous membranes of the inside of the eye as well as swelling below the jaw (commonly referred to as bottle jaw). This round worm also causes deaths where the parasite load is high or in young lambs and kids.

#### **How do animals get infected with roundworms?**

Most of the roundworms of importance lay eggs in the gut of the animal. These eggs pass out with the animals' dung and develop into infectious stages in the pasture which are picked while grazing.

#### **Tapeworms**

These are flat, segmented or tape-like worms that live in the intestines of animals. For all tapeworms there are two animals in their development. The animal harbouring the adult tapeworm is known as the final host, while that

harbouring the juvenile stages is the intermediate host. While for domestic animal species the final host is always a mammal, the intermediate host is sometimes a mammal and sometimes an arthropod. Control of tapeworms is based on breaking the life cycle or on treatment of the adult infection in the final host.

Majority of tapeworms are found in the gut of animals. Some of these appear as white segments in the dung of calves, sheep, goats and camels.



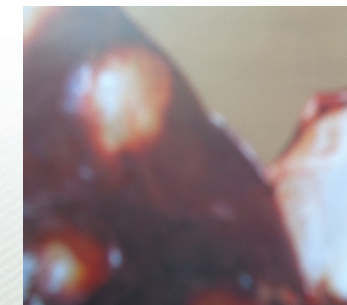
*Preserved Sheep tape worms*



*Segments of sheep tapeworms as seen on faecal material*

While these infections are highly visible and quite dramatic, they rarely cause any ill effects. Farmers often treat animals with dewormers whenever they see tapeworm segments in the faeces, these infections are often a cause of over frequent dosing.

Other tapeworms are found in other organs such as: muscles such as beef tapeworm, pork tapeworm and liver and lungs such as hydatid cysts as shown.



*Hydatid cysts on sheep liver (L) and beef tape worm cysts (R)*

### **TYPES OF WORMS IN FARM ANIMALS**

Every animal is infested with worms. The effect of the worms on the animal and their importance depends on:

- Type of worm
- Number of worms present
- Species and breed of animal
- Age of the animal
- Nutritional status of the animal
- Amount of previous exposure the animal has experienced.

#### **Types of worms infecting animals**

The worms can be divided into three main groups; namely roundworms, tapeworms and flukes.

The relative importance, method of control and the drugs for the treatment vary depending on the group of the worms, it is important to draw a distinction between them.

#### **Roundworms**

These are white, elongated worms with a cylindrical cross-section and with gradually tapering at both ends. The most important of these worms live in the gut of the animal, in the