Goat Agribusiness And Community Animal Health Worker Project

# Training Module No 6

## Theory

1. Internal parasites
2. 5-point check for internal parasites
3. Checking for anaemia and use of dewormers
4. Roundworm
5. Tapeworm and tapeworm cyst
6. Flukes

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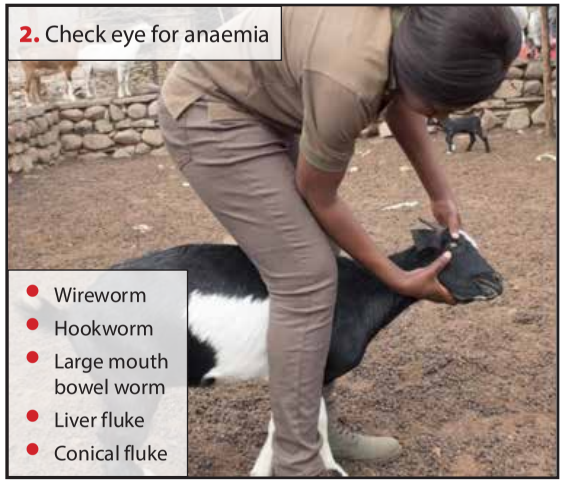
# Identifying and treating internal parasites

Internal parasites are commonly called worms, but also include flukes. They are one of the biggest production problems with goats. Most goats have some worms but when there is an imbalance between the parasite and host this can lead to significant loss of condition and eventual death in the goat. It is important to identify the particular worm that is the problem as the dewormers are specific to types and no dewormer can cover all the types of worms. Use the 5-point check on the following page to identify which of these it could be and treat accordingly.

## 5-point check for internal parasites

The Five-Point Check© is aimed at checking goats that could be affected by one or more major internal parasites. There are five places on the body that need to be checked. Those places are the nose eyes jaw tail and back. The steps below demonstrate how it's done and what each inspection might show.




1. **Nose:** Discharges from the nose may indicate nasal bot fly (*Oestrus ovis*) also might be a sign of pneumonia.
2. **Eyes:** anaemia (as determined by the use of FAMACHA©) may be due to wireworm (*Haemonchus contortus*) and other worm species that cause anaemic conditions such as hookworm. Note: see more detail below about checking for anaemia.
3. **Jaw:** A soft subcutaneous swelling below the jaw is known as the bottle jaw. This is another symptom of worm species that cause anaemia.
4. **Back:** Body condition scoring is the assessment of overall condition of the animal. If only a few in the flock show poor condition, this may show worms that suppress the animals' appetite such as bankrupt worm, brown stomach worm and conical fluke.
5. **Tail:** Parasites such as conical fluke and roundworms cause mild or severe diarrhoea. Parasites are known to be major cause of diarrhoea therefore the farmer needs to treat those with visible diarrhoea.

Other observations such as a pot belly, when combined with poor condition or growth rate, is usually an indication of tapeworm infestation.

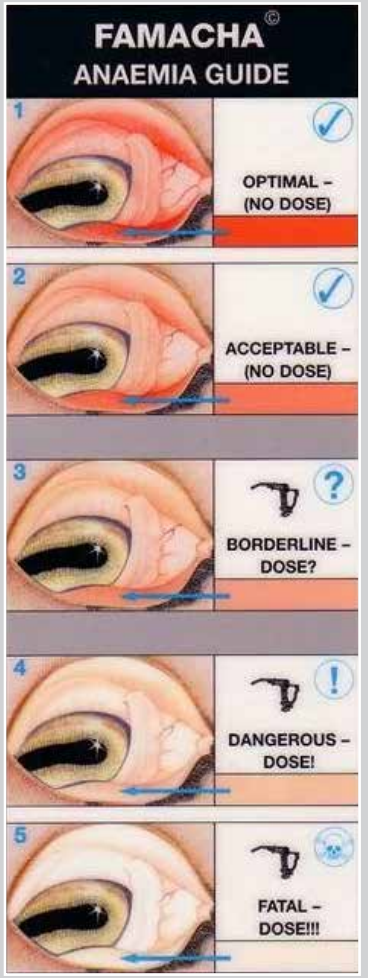
## Checking for signs of anaemia

The FAMACHA© method is only suitable for controlling wireworms because it is based on assessing the level of anaemia in the goats (from looking at the inner membranes of their eyes) and then dosing those that are anaemic. If they are pale pink instead of bright pink they are said to be anaemic. The paleness is because the worms have been feeding heavily on the goat's blood.

**NOTE: THE FAMACHA© METHOD WILL NOT PICK UP TAPEWORM.**

*Different levels of anaemia (from highly anaemic to no signs of anaemia).*

*Checking the goat's eye for signs of anaemia.*




*A FAMACHA© chart*

## Use of anthelmintics (dewormers)

Goats can be dosed with a variety of dewormers – some only kill one type of worm, while others kill a range. You should try and dose for what particular worms are affecting your goats. Resistance will build up over time so regularly change your dewormer ensuring different active ingredients.

Unless you have a particular type of worm that you are trying to treat, you should swap dewormers regularly (check that they have different active ingredients) to make sure that over time you control the different types. You also need to make sure that the product you are using is safe for goats.

It is recommended that you use a FAMACHA© chart and the 5-point check system described below to control parasites in your goats. You can use a standard dosing programme based on periods of heavy infestations and dose the whole flock or herd at certain times of year.

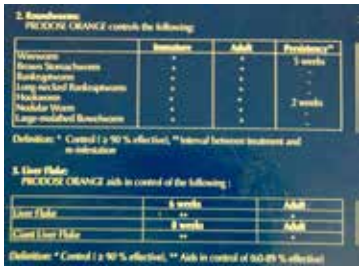
If it is possible, call a technician to send a dung sample to a laboratory to determine what worms are infecting your goats. You should collect a sample directly from some goats and not from the ground. Keep them in a plastic packet in the fridge until you take them to the lab.

If you plan to slaughter the goat to eat you should also check the withdrawal period of the product (this is the recommended time period from when you dose it to when it is safe to eat the goat or drink the milk). Many medicines also have a withdrawal period.

### Things to look for on a dewormer label

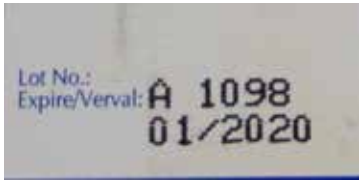

The label often has pictures or at least a description of which animals it is registered for. It should also describe the active ingredients and the percentage by volume.

Look for how it must be stored.



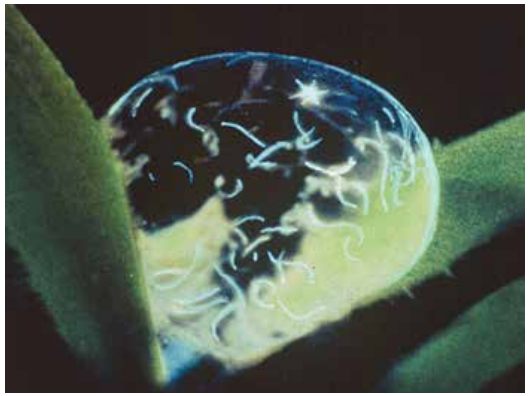
Look for the species of worm that are covered by this particular dewormer. More importantly, look for the efficacy of the particular dewormer. A standardised star system is used – 1 star means it will control 90 percent of adult worms, and 2 stars means that it aids in controlling 60-89 percent of these worms. Also look at whether it works with adult or juvenile worms.


Look at this section for dosage instructions. Often it is weight based, which means farmers should have estimates of the goat's weight.

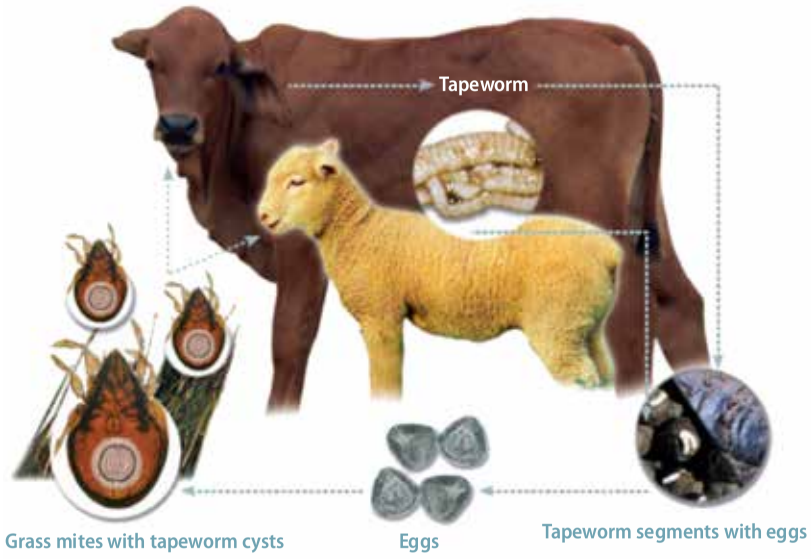



Check expiry date of the dewormer before using it.

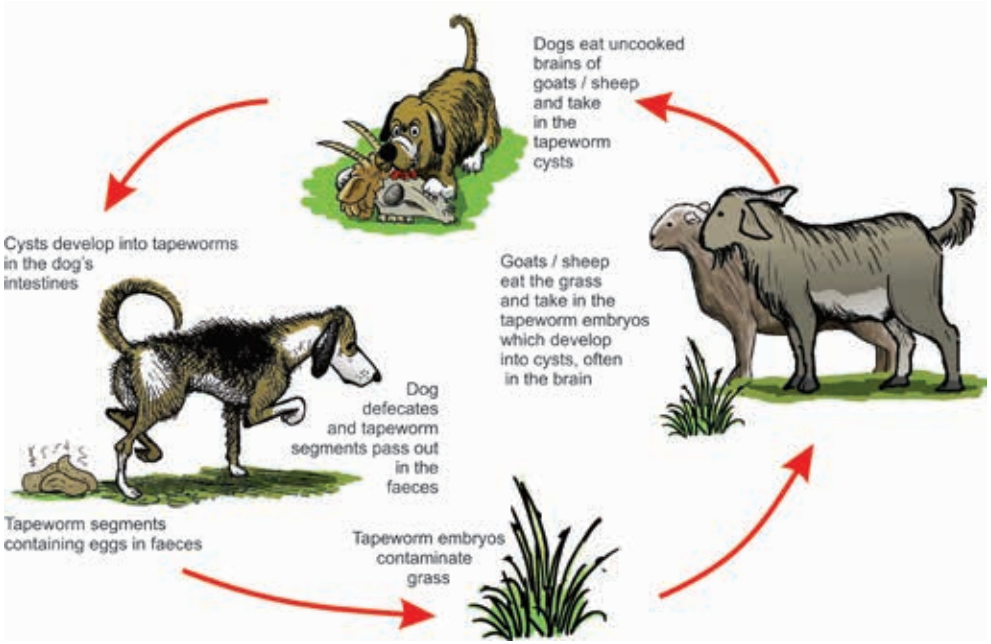
## Roundworm

| Description | | Life cycle | Management | Treatment |
|---|---|---|---|---|
|  <br>  | These worms have long cylindrical bodies, are unsegmented and have simple life cycles, which involve free living larval stages. Some are bloodsucking such as the wireworm, while others simply damage the intestine. | After mating, the female worms lay eggs that are passed in the faeces. Depending on conditions they can survive several months. When conditions are favourable they hatch and go through 3 stages, free living in the soil. The third stage crawls up low vegetation – about 5 centimetres – and can survive quite long periods like this. If eaten with the grass, they undergo a final stage inside the goat and become adults. | The worm larvae live in moist spots where water drips or collects, so kill grass around watering points or taps as it is probably infested with worms.<br><br>Don't build resistance by drenching all the animals – only treat goats that are anaemic according to FAMACHA©. | There are various dewormers on the market. Choose ones with 1 star for best results.<br><br>Read the label and follow correct dosage procedures. |

## Tapeworm

| Description | Life cycle | Treatment |
|---|---|---|
|    They are characterised by long segmented bodies and an indirect life cycle. In some cases, the goat can be the final host (it has the adult tapeworm) but in other cases carnivores such as dogs play this role while the goat is the intermediate host (it has the intermediate bladder or measles in its flesh). **Tapeworm life cycle**   | Where goats are the final host (milk tapeworms *Moniezia*, *Thysanezia*, and *Avitellina* species) the ripe tapeworm segments are passed out in the faeces and release their eggs. These can be eaten by tiny mites that live on grass. They act as intermediate hosts. The mites if eaten by goats, release the infective stage of the tapeworm in the intestine where it attaches and grows to an adult. | There are many dewormers on the market, but the tapeworm-specific ones are better, as broad spectrum ones are usually less effective. |

## **Tapeworm cyst** (turning disease/draaikop) – Medicines registered for milk tapeworm will not work on this

| Description | Life cycle | Treatment |
|---|---|---|
| Goats can get a condition that is often called draaikop or malkop or turning disease. The animal starts turning in circles and loses condition as it no longer eats and eventualy dies. It can spread these tapeworms to humans if the meat is not cooked properly and so also poses a zoonic danger.<br><br>  <br><br>*Above: A tapeworm cyst in a goat brain*<br>*Below left: Tapeworm Measles in meat*<br>*Below right: A tapeworm cyst*<br><br>   | When goats are the intermediate host, the adults live in carnivores like dogs. Segments or eggs are passed in dog faeces. These are eaten with grass by the goats. The immature stage migrates to its preferred place for forming a cyst or measle stage. In the case of the brain bladder worm (*coenuris cerebralis*) this is the brain or spinal cord; for the sheep measle (*cysticercus ovis*) it is the heart muscle or skeletal muscle; and in the hydatid cyst (*echinococcus granulosus*) the liver or the lungs. If a dog eats these cysts the adult tapeworms form in its intestine.<br><br>  | The only effective treatment is to deworm dogs in the area and farmers should not dispose of raw meat, especially brains, to the dogs. Brains must either be thrown into toilets or burnt or cooked before given to dogs.<br><br>Once a goat exhibits the turning symptom it is often to late for any treatment, but the rest of the flock can be treated with an injectable dewormer. |

# Flukes

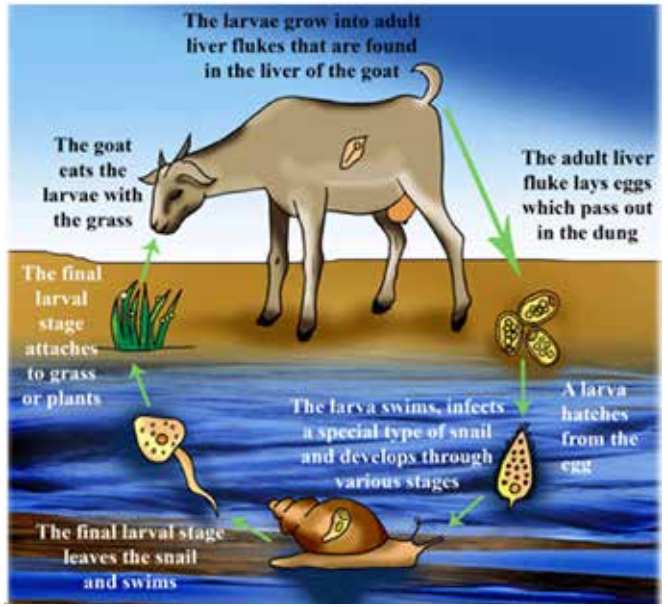
## Description

Flukes have shorter bodies and more complex life cycles, which involve a secondary host through which they must pass to complete their life cycle. In goat flukes the intermediate hosts are freshwater snails.

## Life cycle

These parasites need an intermediate host to complete their life cycle. Certain freshwater snails are suitable hosts. The adults lay eggs which are passed out with the faeces and can survive for various periods but usually 1 to 3 weeks. In water the *miracidium* stage must find a snail host that it penetrates. They leave the snail after various stages and form a metacercaria which attach to vegetation and can survive for long periods.

If they are eaten they develop into immature flukes. Liver flukes take 2 to 3 months to migrate through the liver and adults develop in the bile ducts. The conical flukes migrate up the small intestine and become adults in the rumen.




## Treatment

Fluke specific dewormers are the best solution for the flukes.

In liver flukes a product with the active **Triclabendazole** is best.

In conical flukes, use a product with the active Oxyclosanide.

## Management

Watch out for infected water sources.