



CATTLE: PARASITES

Internal parasites

Internal parasites are usually taken up by cattle when grazing, and some of them also in dirty housings. Although cattle develop immunity against some parasites, infection may especially affect young animals severely. Internal parasites can not be seen from the outside! To prevent wrong medication, the correct diagnosis should therefore be made by a veterinarian.

Good parasite management

For all parasites, prevention is always far more cost effective than treatment. Parasites can never be eradicated completely. But they can be managed in a way that they do not harm your animals severely, and the animals' resistance can be strengthened by good husbandry.

Feeding: adequate quantity and quality, clean water
Housing: always clean and dry
 enough space for all animals to move freely
Pasture management: fence off wet areas, graze young animals on fresh pasture, don't overstock or overgraze.

Coccidiosis

Coccidiosis is caused by microscopically small single-celled organisms called coccidia. Infection occurs most frequently in calves between three weeks to six months of age, but can also affect animals up to two years old. Coccidia live and multiply in the intestines of cattle, and their eggs are passed outside with the manure. Once outside, they develop best in a wet environment and are infectious for cattle when they are ingested. Calves may acquire an infection when they begin grazing or eating food other than their mother's milk. Cattle develop immunity against coccidia.

Symptoms

Signs of coccidiosis are watery to bloody diarrhea, loss of appetite, reduced weight gain, weight loss and dehydration. Deaths are rare, but in severe cases, animals may never recover fully from coccidiosis and remain small and weak.

Treatment

- Most animals will recover without treatment. Discuss the necessity of treatment with your veterinarian.
- Calves with severe diarrhea should be isolated and treated.
- In case of heavy diarrhea a salt/sugar solution must be given.
- Dehorning, castration, weaning or other stressful procedures should be avoided when calves suffer from coccidiosis.

Prevention of coccidiosis

Management and hygiene are central.

- Prevent drinking water and feed from becoming contaminated with manure.
- Raise watering troughs above the ground.
- Keep pens dry and supplied with dry bedding.
- Use pastures that are well drained and avoid grazing along the edges of ponds and streams.
- Reduce stocking densities and prevent overgrazing. Animals forced to graze down to the roots may ingest large numbers of parasites.

Gut worms (round worms, parasitic gastroenteritis, nematodes)

Similar to coccidia, gut worms live in the intestine of cattle. Their eggs are passed into the environment with the manure. There they hatch and develop into infectious larvae infesting the herbage. In warm moist weather they can reach high numbers in pastures.

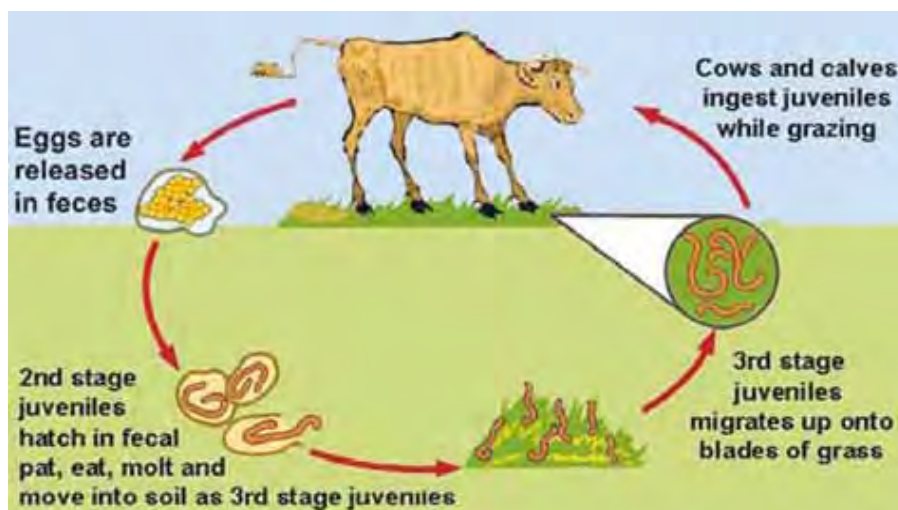
When grazing animals ingest them, the larvae develop to adult worms inside the gut (see illustration beneath). Infected calves and young animals will eventually build up resistance. Although death is rare in cattle, young animals can be seriously affected.

Symptoms

Like most gut diseases, gut worms cause loss of appetite, rough coat, poor growth or weight loss, and diarrhea (often coloured green).

Treatment

Usually most animals of a group are affected. They have to be treated with anthelmintic drugs in the correct dose.



Prevention of gut worms

- Avoid overstocking. Where grazing is scarce, animals are forced to graze closer to dung heaps, resulting in increased intake of worm larvae.
- Graze paddocks in rotation: groups of calves are followed by groups of older cattle.
- Avoid grazing contaminated pasture during moist warm periods. Move the cattle onto fresh ungrazed pasture, e.g. where you prepared hay before.

Lung worms

This nematode is up to 8 cm long and lives in the lungs of cattle. Adult females lay eggs from which the larvae hatch in the bronchi. The tiny larvae are being coughed up, swallowed, and passed outside with the manure. When these larvae are ingested by grazing animals, they pass from the intestine into lymph and blood until they reach the lungs, where they stay and develop into adult worms. In severely affected animals, sudden deaths may occur.



Lung worms in bronchi

Symptoms

Early signs are rapid breathing and frequent coughing. Severely affected cattle are reluctant to move and stand with their head down, necks extended, and they cough frequently. Poor growth in young animals or loss of weight is frequent. Lung worms promote calf pneumonia. In dairy cows, milk production can be reduced up to 50 percent.

Treatment

Prompt and correct veterinarian treatment is essential.

Prevention of lung worms

Once infected, cattle generally become immune to further disease, but the disease sometimes recurs.

- Practise good pasture management.
- Repeated vaccination, usually before the grazing season, should be used to control lungworms.

Tapeworms

Tapeworms have very complicated life cycles. Adult tapeworms live in the intestine of their main host, usually a carnivorous species. Their numerous eggs are passed into the environment with the dung.

The eggs can be ingested by grazing animals. Inside this second host, they lock themselves up inside muscle tissue and develop to larvae, called cysts.

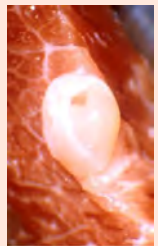
When meat of this host is eaten by the main host, the tapeworm cyst now remains inside the intestine. Here it develops into an adult tapeworm.

When cattle are infected with adult tapeworms or tapeworm cysts, this usually has little effect on their health, but their productivity may be reduced.

Tapeworms in people

One tapeworm species, the beef tapeworm, lives in the intestine of people and can be up to 10 m long. Its larvae (cysts) develop in cattle, which is the second host.

Humans become infected when they eat raw or undercooked beef containing tapeworm cysts, called beef measles. They are small and pea-sized (see picture) and contain a small immature tapeworm. If ingested, the cyst develops into an adult tapeworm within 2-3 months which can survive for 25 years or longer.



Tapeworm cyst

People with a tapeworm always feel hungry and loose weight as the long worm inside them absorbs all the food they eat.

- Other signs
- Uncomfortable and itchy feeling around the anus.
 - Flat, white, fleshy sacs appear in the underwear. They contain tapeworm eggs.
 - Long, white strips can be seen in the stool.

Treatment Consult a doctor. Modern drugs are very effective in eliminating this hungry guest.

Liver flukes

Adult liver flukes are blood suckers in the bile ducts of the liver mainly in cattle and sheep. Their eggs are passed through the bile ducts into the gut and from there into the environment with the animal's manure. The larvae that hatch from the eggs have to find a suitable mud snail or water snail which they can invade for their further development.

A few weeks later, they emerge from the snail as tiny larvae with tails. They attach themselves to grass blades. When cattle ingest them, the microscopic fluke larvae burrow through the gut wall and migrate into the animal's liver. Here they develop into adult liver flukes.

Symptoms

Typical signs are anaemia (lack of blood), colic, loss of weight, reduced milk production, chronic diarrhoea and fertility problems.

Note: Animals with liver flukes are easily attacked by Red water bacteria which also colonize the liver. They produce a toxin that leads to rapid death.



Prevention and treatment of liver flukes

- Wet, swampy areas have to be fenced off. Consult your local animal health advisor to identify breeding places for flukes.
- Where flukes are common, animals have to be treated with flukicides regularly. Consult a veterinarian.



Natural and traditional remedies for worm control

- The efficiency of most botanical dewormers is not well investigated. Dosages, treatment periods and mode of application are unclear.
- Some plants are poisonous and should not be used without clear instructions from a reliable and experienced extensionist or provider.
- Natural products usually do not have the same immediate effect as synthetic drugs. They may have to be applied over a longer period. And as cattle are very large animals, large amounts of the preparations will be required (about 10 times the dose for goats and sheep).
- In cases of heavy infestation with any parasite, you have to consult a veterinarian and apply an effective drug in the correct dose.

Diatomite against internal parasites

“Food grade” diatomite can be mixed into feeds to control internal parasites in light cases. For cows, 120 g – 250 g per day (depending on size and feed intake) are recommended over a period of two months. Mix diatomite with wet forage to prevent that the animals inhale the powder. It is not advisable to feed diatomite permanently because there might be undesired effects on the intestine.

Organic farming encourages the use of natural remedies.

These are the most common botanical dewormers:

Pyrethrum	Usually plant extracts and byproducts of the pyrethrum industry are applied. “Pymac” can be mixed into feeds regularly.
Garlic	Garlic can be used fresh, powdered, in pills or as tincture. Recipe: For one cow, 250 g of garlic are minced and mixed into 4 litres of water. 2 litres are drenched twice a day.
Neem	Seeds, bark, cake, and oil can be used.
Wormwood	Preparations from <i>Artemisia ssp</i> can help against most internal parasites.
Mustard	The seeds or seed oil can be used. 100-150 g mustard seeds are given to a cow daily for one week. This treatment is repeated regularly.
Wild ginger	50 g of the aerial parts of snake root roots are minced and given to cattle.
Squash / pumpkin	Seeds and seed extracts can be used.
Carrot seeds	May be used against lung worms.
Albizia anthelmintica	(<i>Mwowa</i> or <i>Kyalundathi-Kamba</i>): For one cow, soak 500 g of chopped bark in 3 l of water overnight, sieve and drench.

External parasites

Mites, lice, ticks, mosquitoes, flies and grubs are a threat for livestock and their owners. They feed on blood, skin and hair, producing wounds, skin irritation and skin damage. They transmit serious diseases from infected animals to healthy ones. Secondary infections are frequent. Weight gains, milk production and general well-being can be considerably reduced. Infestations should be treated promptly to avoid further complications. Prevention and good animal husbandry have a large influence on infestation with external parasites.

Observe your animals well!

Many parasites are tiny and cannot be seen easily. But often there are clear signs of infestation:

- Constant scratching and rubbing against fences, trees or other equipment.
- Loss of hair, inflamed skin, bare skin areas, crusts and scabs
- Nervousness, reduced intake of water and feed.
- Reduced milk production and poor growth rate.
- Weakness and depression, anaemia, abortion.



Mites The microscopically small cattle mites are usually found on the neck, on the legs and the loin area next to the tail. They feed on the surface or burrow just beneath the skin, making tiny tunnels. They produce a toxin which causes intense irritation and itching. Infested animals rub and scratch continuously, producing inflamed areas with poor hair and crusts. Reduced production is frequent.

Mange Mange is the term used to describe the skin reaction caused by infestation with mites. The disease is a sign of poor husbandry and/or other illnesses and is often seen in animals in generally poor condition. The disease is contagious and treating all animals at the same time is essential.



Lice Lice are about 2 mm long and cause skin irritation by sucking blood (left: cattle tail louse) or biting (right: biting louse, mostly found on neck, shoulders, back and rump). Most products for lice control are not effective against lice eggs which stick to the coat. Treatments have therefore to be repeated after three weeks to kill all lice which hatched from eggs after the first treatment - before they start to lay eggs themselves.



Flies Flying parasites are especially difficult to control. There are many species of biting and blood sucking flies. They can decrease productivity by painful attacks and wounds which serve as sites for infections. Cattle grubs (left) are warble fly larvae developing under the skin of cattle. Some flies transmit diseases like trypanosomiasis (tsetse), anthrax, or anaplasmosis (right: horse fly).



Ticks Ticks are a major problem in tropical regions. They cause wounds, abscesses, loss of blood and udder damages, and reduced growth and milk production. But the most massive losses are due to transmission of dangerous cattle diseases including East coast fever, anaplasmosis, babesiosis (red water) and heartwater. Tick control requires regular dipping and spraying, usually on a weekly basis.

Prevention of external parasites

Although animals will be constantly re-infected, cattle owners can do much to prevent losses and damages.

- The best prevention is to promote the animals' natural resistance by keeping them well nourished all year round and by good control of other illnesses. Parasites concentrate on animals with a weak immune system – an indication of stress, poor nutrition or other underlying health problems, e.g. internal parasites.
- Investigate and treat immediately if you observe frequent rubbing, scratching and irritated skin. Separate animals that display signs of infestation.
- Avoid communal grazing. This system practically always leads to infestation with parasites.
- If communal grazing is not avoidable, speak to the people who graze their animals communally with yours. If joint control efforts were not successful, vigilance and treatment is all you can do.
- Always separate new animals for at least three weeks. Check them very closely for signs of infestation and treat them if necessary.

Tick control

Wide use of acaricides against ticks has led to the development of pesticide resistance in ticks. Current control of ticks and tick-borne diseases may be judged as expensive and ineffective.

General advice

- Change tick controlling chemicals frequently to reduce building-up of resistance.
- Acaricides made from synthetic pyrethroids are effective but very persistent pesticides. They are avoided in organic farming where natural pyrethrum products are used.
- Treat your cattle regularly since ticks are always present in pastures. They can survive without food for up to two years.
- Burning pastures in order to kill ticks does not work because ticks often hide in the soil.
- Dipping is more effective than spraying as all the parts of the animal's body are evenly covered by the acaricide.
- Farmers should not graze their animals on the roadsides where they are likely to get ticks and other parasites.
- With fencing, pasture management and rotational grazing farmers can reduce the damage caused by ticks.
- Zero-grazing animals are less exposed to ticks. Practise zero grazing in areas where tick problems are serious.
- Free-range chicken roaming in the cattle shed can reduce the population of ticks.

Tick disease resistant breeds

Most indigenous cattle breeds like Boran, East African Zebu and their crosses possess a natural resistance against tick-borne diseases. Resistant animals are less infested and require less dipping. They usually acquire immunity early in life and do not develop the typical disease symptoms. In areas where it is difficult to control ticks, it is better to keep indigenous breeds and their crosses instead of pure exotic dairy breeds.

Treatment with conventional drugs

To be effective and to prevent parasite survival, all drugs must always be applied in the correct dose!

Organic remedies for external parasites

Diatomite	Against lice, ticks and mites. Dust all skin areas which are infested. Also dust all beddings. Take care animals do not get the powder into eyes and noses.
Pyrethrum	Against mites and lice.
Soap	Against lice and mites. Use pure soaps and avoid detergents! Repeated treatments will be necessary.
Plant oils	Against mites, lice and ticks. Apply a light coat of oil to the infested areas. Repeat this treatment every 3 days until all parasites have disappeared.
Neem Oil	Use neem oil diluted with another oil against all external parasites.
Aloe:	To control lice and mange, crush leaves of aloe leaves, mix with water and leave for 2 days. Apply this solution once a day as long as necessary.

Organic tick control methods

Pyrethrum: Mix 250g of dried flowers in 10 litres of water and let it stand in a dark room for 12 hours. Sieve and apply with a knapsack sprayer or rub into the animal's fur (always use protective clothing when handling pyrethrum).

Tephrosia: Pound and boil 500 g of fresh leaves in 1 litre of water for 30 minutes. Sieve through a tea strainer, dilute with five litres of water and apply on the whole body of the animal.

Diatomite: Dust directly on tick infested areas.

Tobacco: Boil 1 kg of fresh tobacco plant leaves in 5 litres of water for 20 minutes. Allow to cool, filter, and rub the preparation on the infested animal using a clean cloth.

Plant extract as tick repellent:

Spray cattle regularly with neem (Muarubaini) extract to reduce tick infestation.

Living barriers against ticks:

Plant these plants especially around the cattle unit and around your house to keep ticks off:

- Molasse grass (available at ICIPE and at most KARI stations).
- *Gynandropsis gynandra* (Kikuyu: Thageti; Kamba: Mukakai; Kisii: Chisaga; Luo: Akeo)
- *Ocimum suave* (Luo: Bwar; Kikuyu: Mukandu; Taita: Murunde; Kamba: Mutaa; Masai: Sunoni; Pokot: Chemwoken).

Publication of **The Organic Farmer**. The magazine for sustainable agriculture in Kenya. www.organicfarmermagazine.org
P.O. Box 14352, 00800 Nairobi. Tel: 020 44 50 398. Email: info@organickenya.org

Compiled by Theresa Szekely

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