

The fight against Anthelmintic Resistance

Dr. Denise Cole

Parasitic worms, known as “helminths”, feed on living hosts such as humans and animals including but not limited to cats, dogs, goats, sheep, cattle and horses. They include Cestodes (tapeworms), Nematodes (roundworms, hookworms, pinworms) and Trematodes (flukes).

The majority of them tend to be in the digestive tract and may affect the digestion and absorption of nutrients while other organs may become affected as a result of parasites migrating through the body. Affected animals may not show illness, however, they generally exhibit signs of poor body condition, reduced growth rate, anaemia, diarrhoea and, in extreme cases, death.

Anthelmintics otherwise called “dewormers” are drugs used in the treatment of intestinal parasite infestations. The most commonly used classes are: Benzimidazoles (e.g. albendazole, fenbendazole), macrolytic lactones (e.g. ivermectin) and Imidazothiazoles (e.g. levamisole).

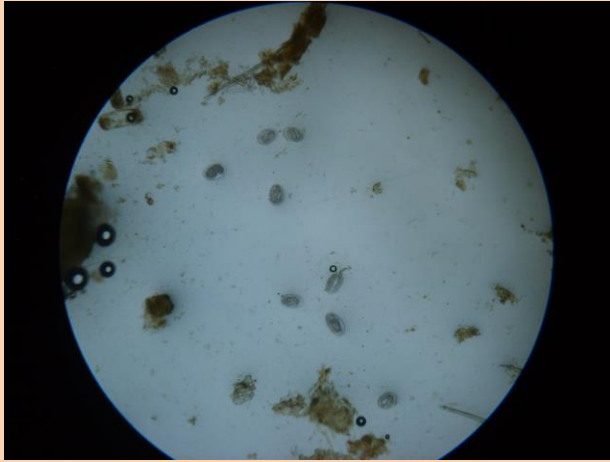
Anthelmintic resistance occurs when the parasites in an infected animal become nonresponsive to treatment due to adaptation to the chemicals being used. This may be due to the misuse of the drugs.

Misuse may involve:

- 1) Under-dosing—parasites are exposed to levels of the drug that are too low to destroy them causing ineffective control and increased tolerance of the drug.
- 2) Repeated use of the same class of dewormer — this kills the susceptible worms allowing the resistant ones to survive and increase in number over time.



3) Use of the incorrect anthelmintic for the type of parasite being treated.



Anthelmintic resistance is an area of growing concern and has been particularly prevalent in sheep and goats worldwide. Reduced efficacy of the available anthelmintics can result in inability to control the spread of worms. Due to genetic adaptation, worms are becoming increasingly tolerant of anthelmintic treatment and can also pass on the ability to resist treatment to their offspring thus effectively creating 'superworms'.

Worm eggs in goat faeces seen under the microscope.

Recommendations for combatting anthelmintic resistance include:

- 1) Periodically changing the class of dewormer being used on a given herd.
- 2) Using the correct dosage and method of administration of dewormers as directed.
- 3) Use of dewormers only when necessary, and upon identification of target species.
- 4) Use of herd management practices to reduce exposure to worms
- 5) Selecting those animals in a herd that do well regardless of worm infestation as breeding animals for replacement stock – i.e. keep the offspring of those animals than withstand worm infestation without losing condition.

Dr. Denise Cole is a practicing veterinary surgeon and the owner/founder of the North Coast Animal Clinic, St. Ann's Bay. In addition to Veterinary Medicine she also holds a degree in Biological Sciences which complements her professional practice. Dr. Cole is an avid equestrian and serves on the board of the Equestrian Federation of Jamaica. Aside from equestrianism her interests include: Farm animal health and welfare, exotic species and pet care.