

INTERNAL PARASITES IN ALPACA

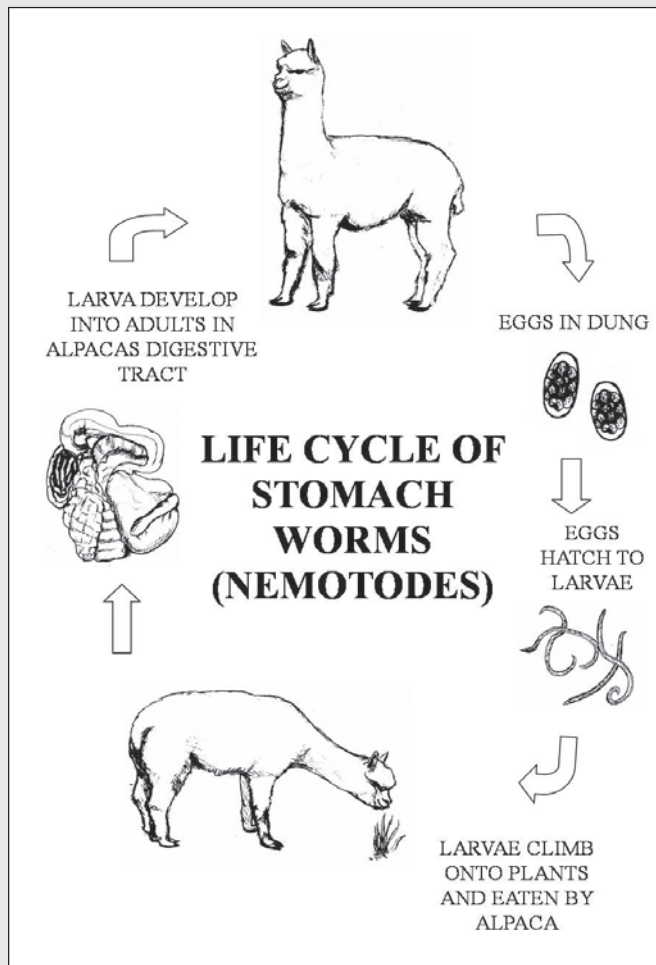
PART I

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One of the major advantages of keeping alpacas is the low maintenance required in their upkeep. In comparison to other classes of stock, alpacas come out head and shoulders (not to mention neck) ahead. One particular area of advantage is the alpaca's comparatively low parasitic burden. That is not to say, however, that alpacas are not affected by internal parasites. Like all ruminants alpacas are susceptible to a wide range of internal parasites of varying degree of concern to the breeder. Some minor infestations often may go unnoticed for months, if not years, whereas others, if left unchecked, can and do all too often, prove to be fatal.

Compared to their native South America, there are a number of factors that conspire against the alpaca when combating parasitic infestation here in New Zealand.

- In South America, alpacas are farmed extensively, browsing over vast acreage at average stocking rates of less than one animal per hectare. The far superior pasture grasses of New Zealand, allow for a huge increase in stocking density, typically 10 to 14 animals per hectare. Unless managed, an increase in stocking density can have a disproportional increase in parasitic burden.
- The climate in New Zealand is also hugely different from that experienced in the Andes. A more temperate climate has many advantages, however, it does allow for an increase the longevity of the parasitic larva whilst in the pasture.
- The practice of "set-stocking" i.e. the allocation of one paddock to a group of animals for long periods inevitably



increases the level of worm burden on the pasture. The lack of available nutrients in the Altiplano requires the Quechua Indian herdswomen to continually move their stock from area to area in an extensive rotational grazing system. This system means that South American alpacas are moved onto "clean" areas of pasture with low worm infestation.

- The use of a communal dung pile and the reluctance of alpacas to browse in close proximity to it drastically reduces the level of ingestion of parasitic larvae. Once the dung pile starts to spread across the pasture the exposure to parasitic larvae will be increased. Set stocking at comparatively high stocking rates causes a spreading of the communal dung pile, particularly evident when running larger groups of females with offspring.
- Due to the extremes in climate in the Altiplano and the inability of other classes

of stock to thrive, in many instances there is very little in the way of mixed stocking in Peru. In New Zealand however breeders often choose to utilise mixed stocking regimes as a method of pasture management. Because many parasites are common to a number of ruminants including alpacas, mixed stocking can lead to an increase in parasite levels because sheep and cattle do not use dung piles but spread their faeces and worms all over the dining table, filthy beasts.

There is a vast array of internal parasites that affect ruminants. Some are "host specific" and will only affect one class of animal, others are less choosy in who they infest. Following are a number of internal parasites that can, and do infest alpacas to varying degree here in New Zealand:



Nematodes (Stomach Worms)

The nematodes or gastrointestinal worms are a group of internal parasites that infest a wide range of hosts. There are many different species of worm but their life-cycles are similar. Eggs are secreted in the faeces of the host animal. The eggs hatch into larvae which then climb plants within the pasture. Having climbed the pasture plants they are then eaten and swallowed by the unfortunate “host to be”. Once inside the larvae develop through various larval stages and reach adulthood. The adult worms attach themselves to the lining of the stomach, intestine or colon depending on the particular species. Often it is the damage caused by the attachment of the worm to the lining of the digestive tract that leads to the ill health of the host.

Trichostrongylus, Nematodirus, Oesophagostomum

The above are all nematodes or stomach worms that have been found in camelids throughout New Zealand. Although differing slightly in lifecycle and areas of infestation, the general effect on an infested animal will be the same, as will the control.

All of the above may affect alpacas to a varying degree. Initial signs of infestation can include a dull coat, slow growth in young animals, reluctance to eat and weight loss. If an infestation becomes overwhelming then it may lead to “enteritis” with resultant diarrhoea. Anorexia, anaemia and further problems (such as death) resulting from secondary infections may also be present.

Barbers Pole Worm *Haemonchus contortus*

This is the “biggy” when it comes to nematodes in alpacas and as such deserves special mention. Found mainly in warm, humid regions “Barbers Pole Worm” (named because of the females striped appearance – blood filled gut coils around white uterus and looks like a barber’s pole). *H. contortus* is of considerable concern when infesting recently weaned alpacas or other animals under abnormal stress.

Under normal circumstances in adult animals an infestation of this nematode would provoke an immune response and be of little consequence however when animals have low immunity an infestation of Barbers Pole Worm can be fatal.

“Barber’s pole is dynamite! Never relax if it is on your property. These worms are prolific egg layers thousands of eggs per worm per day, can rapidly contaminate a pasture and have the potential to kill all classes of alpacas”. Dr Jane Vaughan BVSc PhD MACVSc

H. contortus differs from many other internal parasites in that it is a “blood sucker” and it is this aspect that makes it of greatest concern. The adult worm damages the lining of the intestine and can cause seepage of blood into the intestine as well as ingesting blood directly. The blood loss leads to a drain of protein resulting in loss of weight, weakness, and in severe cases death of alpacas. The use of faecal egg counts may be used as a gauge of the severity of the infestation. However, because the egg counts very rapidly accelerate into the thousands, if stock are introduced onto a pasture that is highly contaminated, the immature stages of the worm can kill the

host (e.g. alpaca) before egg laying occurs (approximately 21 days after ingestion of the larvae from the pasture) In this situation, the faecal egg output would be zero.

Although not documented to any degree it is probable that *H. contortus* is a contributing factor to the loss of a significant number of weanlings in New Zealand each year.

Prevention

Faecal Egg Counts

The best and most scientifically correct method to assess the internal parasitic burden on your animals is to routinely collect fresh dung samples (directly from the rectum or still steaming on the dung pile!) and have them tested for the presence of eggs. Although many breeders rely on a “drenching routine” to manage internal parasites, routine faecal egg counts will give you an accurate assessment as to your herds internal parasite problem and will act as a guide as to when you should be taking action. Ask your local veterinarian and Department of Agriculture advisor for parasite information relevant to your locality.

Egg counts in crias and weaners usually stabilise at low or moderate levels and, in most cases, decline without treatment as the animal grows older. Age resistance to parasites occurs from 12-18 months of age. Higher levels are generally found in those born in autumn and winter. Infections persist in some individuals and these animals may be at risk.

Routine Drenching

Some breeders prefer a more “carpet” worming approach and will periodically drench their alpacas. The scientists’ views on this approach seems to change annually, such a blanket worming approach can lead to the build-up of nematodes that are immune to certain anthelmintics. The advised period between drenching varies considerably from region to region. If unsure as to the level of local parasitic burden consult your vet or local MAF official.

(At our property in Karapiro we routinely drench our animals at weaning and then on a six monthly routine in spring and autumn. With the exception of animals going to shows or mobile mating males, all animals leaving the property are wormed prior to departure.)

Management Techniques

There are a number of management practices that can aid significantly in the reduction of the level of internal parasites in New Zealand farmed alpacas. Listed below are a number of pointers to assist, many may not be practical to those farming on small acreages:

- Reduce the stocking rate. Less animals on the same area reduces the rate of re-infestation. Avoid overcrowding in small yards or paddocks.
- Having “wormed” or “drenched” stock, move them onto a “clean” or “rested” paddock to avoid re-infestation.



- Ensure all stock entering the property have been wormed prior to arrival. Where this is not possible the use of a “quarantine” paddock for new arrivals may be used.
- Avoid grazing crias and weaners with large numbers of older animals.
- Provide adequate nutrition and shelter.
- Remove dung piles and compost for 3 months in summer and 6 months in autumn, winter and spring.
- Never spread faeces from dung piles directly back onto the pasture as fertiliser without first composting (this includes harrowing).
- Rotational grazing of pastures every few weeks will not reduce pasture contamination (require 3 month spell over summer, or 6 month spell over winter to appreciably reduce pasture contamination of worm larvae).
- Use faecal egg counts (especially crias, weaners) in July/August and December to monitor herd status.
- Animals over 1 year of age, late pregnant and heavily lactating hembras may be more prone to heavy worm burdens.
- Grazers such as cattle or sheep can be very efficient at “tidying” the browsing alpacas pasture but will contaminate pasture with similar parasite species. This is especially true for calves and lambs. It is therefore preferable to avoid using other classes of stock to manage pasture. If, however, the practice is utilised, ensure that the introduced stock have been wormed prior to introduction and introduce other animals behind the alpacas not ahead. .
- Observe, observe, observe! Make a point of regularly checking your alpacas, look out for lack lustre coat, reluctance to eat, diarrhoea, dehydration, loss of condition, unthrifty animals (particularly in weanlings) and get hands on. Regularly yard your animals and run your hands over them to assess condition. That wonderful full fleece can hide a multitude of sins!!!

Method of Worming

There are a wide variety of anthelmintics or “wormers” available on the market. They come in three basic forms distinguished by their method of application.

1. Oral drench. Dosed using a drench gun that “squirts” the anthelmintic into the rear of the alpacas mouth. (Beware of return fire!)
2. Pour-on. Applied onto the backline of the animal and absorbed through the skin of the alpaca. Tricky and messy to apply to full fleeced Huacaya, however a very good advert for open back-lined Suris!
3. Injectable. Injected subcutaneously (under the skin) normally just behind the shoulder. Can be tricky to administer on full fleeced animals but manageable with practice.

Choice of Wormer

As with most (if not all) veterinary drugs available in New Zealand, there are no anthelmintics registered for the use in camelids. That said, there are numerous anthelmintics that have been used safely and successfully in alpacas and llamas throughout the world.

There are three classes of drenches that kill nematodes:

1. White drenches (benzimidazoles) e.g. Panacur®, Valbazen®

2. Clear drenches (levamisole) e.g. Nilverm®
3. Ivermectin family (macrocytic lactones) e.g. Ivomec®, Dectomax®

Worms have developed varying degrees of resistance to these three classes of drench, particularly in areas where summers are very dry and drenches used regularly. Make sure you select a drench that works on your property by performing a drench resistance test.

When choosing an anthelmintic be sure to select one that will control the parasite of concern. This article has concentrated on the control of nematodes or gastrointestinal (stomach) worms, however other internal parasites such as tapeworms, liver fluke and lungworms may be of concern not to mention external parasites such as lice. Therefore discuss with your vet local Department of Agriculture advisor before deciding on the wormer to use.


(We choose to use a product called “Dectomax” this is a new generation injectable wormer that remains active in the animals system for 21-28 days in registered species such as sheep and cattle.)

How much wormer

As mentioned anthelmintics have proven to be very safe remedies. At Karapiro, when calculating dosages we use a rate of 1.5 x sheep dose rate. i.e. instead of drenching at a rate of 1 mL per 50 kg body weight, use 1.5 mL per 50 kg body weight. Drench to the heaviest alpaca in the mob OR to individual body weights if scales are used regularly in your herd. Ensure drench guns (oral or injectable) are correctly calibrated so that they deliver the correct volume of drench. E.g. Squirt 5 doses of drench into an appropriately sized measuring cylinder to see if the correct volume is consistently delivered.

Homeopathy

There has been a recent move towards the use of herbal or homeopathic wormers, many of these remedies rely on the purgative effect of the remedy to “flush” the offending worms from the animal’s system. The efficacy of herbal anthelmintics does not appear to be as high as more conventional preparations but breeders wishing to adopt an organic approach to farming their animals may wish to investigate further.

The risk when writing an article on such a subject is that the piece is designed to highlight and bring attention to problems. Before signing off I would like to reiterate my opening comments, that is to say that alpacas do have low worm burdens, significantly lower than other classes of stock. However, alpacas can and do get worms and the need to monitor your animals is real, particularly those animals at greatest risk. 

Medicine and Surgery of South American Camelids
– Dr Murray E.Fowler, DVM

Camelids : Proceedings 257 – Dr Ewen McMillan

Principles and Practice of Veterinary Technology
– Dr Paul W. Pratt

