

A NEW "OLD" WORM IN YOUR ANIMALS, CAUSE FOR CONCERN?

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Recently a new worm has been confirmed to be present in llamas in New Zealand. The worm carries the scientific name of *Lamanema chavezii*. To our knowledge it is the first time this worm has been found outside South America. In South America the worm is found in alpacas and llamas and has the potential to kill the animal, although this seems mostly limited to recently weaned crias. The prevalence of this parasite in South America is described to be between 20 and 80 percent. The economic importance of the damage caused by this parasite is due to condemned livers at slaughter and lost production of meat and fibre. Most of the parasites are incidental findings during post mortems.

Lamanema has the ability to damage the liver, lungs and the gut. This is caused by its lifecycle. The ingested larvae exit the small intestine and travel via the blood to the liver and sometimes the lungs. There they moult and migrate again. The worms burrow through the liver, and sometimes the lungs, causing damage. From the liver they travel down the bile ducts into the small intestine again. Adult worms (which are 8-18 mm long) could potentially and with some extra effort be spotted in the small intestine, although microscopic conformation is needed to be sure, as there is often a mixture of parasites present in the small intestines.

In 2006, the first suspicion that we had this particular worm in New Zealand was raised by some faecal eggs found in a llama (P McKenna). Under biosecurity regulations MAF followed this up, but the presence of *Lamanema* was never confirmed, as the mature worm could not be recovered from the animals concerned. Recently, another lot of suspected faecal eggs were found in a batch of faecal samples. MAF was again involved. I was contacted to take individual faecal samples of each animal and drench the animals after sampling with an adequate worm drench. I choose Matrix, a triple combination worm drench, to get the desired effect. The individual faecal egg counts showed the suspected eggs to be present in only one female llama with a cria at foot and a low body condition score of 1.5/5. The other animals on the property were in good body condition. Drenching with unselenised Matrix (because of the high volumes of drench used in llamas and alpacas) at a dose rate of 1 ml per 5 kg by mouth delivered some dead adult *Lamanema chavezii*. This got the laboratory and all others involved excited and an article about the worm has been submitted to the New Zealand Veterinary Journal. Even more recently, more llamas excreting *Lamanema chavezii* eggs have been diagnosed. History links the recently diagnosed llamas to the early shipments of llamas into New Zealand.

So far *L. chavezii* does not seem to cause severe problems in New Zealand. It is not known what the relationship is between the number of eggs in the faeces and the actual worm burden inside the animal. This is very important to understand, as this point often causes confusion. The actual worm burden in your animal causes problems, not the number of eggs in the faeces of the animal. We know for a fact, in other species, that the number of eggs in the faeces are not very good at predicting the actual worm burden in the animal.

The history of the origin of the llamas diagnosed with *L. chavezii* suggests that *L. chavezii* has been around from their first arrival in New Zealand. With the time that has passed since their first arrival on our shores it suggests that *L. chavezii* keeps a low profile. This can have been achieved in a number of ways:

(1) The presence of *L. chavezii* in our camelid population is low, maybe because their life cycle is negatively affected by the New Zealand environment. It is known that *L. chavezii* burdens in South America are highest during the dry periods and that their larvae prefer to hatch (and become infective) in a cooler climate.

(2) *L. chavezii* could be a variable egg producer. Therefore only on rare occasions are any eggs found in the faeces. This means that even if your faecal egg count is zero, the animal could be carrying *L. chavezii*. Like the *Nematodirus* worms *L. chavezii* could be a low egg producer, like worms of the *Nematodirus* species. That is why the *Nematodirus* eggs are separately mentioned on the faecal egg counts of the lab report. Low egg production means that any detected worm egg becomes significant, as in being able to affect your animal. However, it is not known if *L. chavezii* is a low or a high egg producer. We simply don't know enough yet! The recently diagnosed llamas with *L. chavezii* that had shown weight loss also had other worm eggs in their faeces, including *Nematodirus*.

(3) Because the plane of nutrition in New Zealand is high compared with South America the immune status of our animals is good enough to hold *L. chavezii* at arms' length, most of the time.

(4) Diagnostic labs may not have been specifically looking for *L. chavezii* eggs before. However, the *L. chavezii* eggs resemble the eggs of a nasty *Nematodirus* species that we don't have in New Zealand yet. Under the banner of biosecurity the labs are actively on the look out for this type of egg. It seems highly unlikely that they will have missed the *L. chavezii* eggs for so many years. Gribbles Veterinary laboratories will mention the *L. chavezii* separately on your result sheets.

It is important to stay with the facts, rather than run with perceptions and cause misconceptions or a panic. Go over each of your animals, check their body conditions. If the body condition is acceptable and your animal is otherwise healthy there is nothing to worry about. If your animal is sick or has a low body condition score, then include *L. chavezii* in your list of possible problems to deal with. Even if a faecal egg count doesn't show up any *L. chavezii* eggs! This holds true for llamas and alpacas alike, as *L. chavezii* is found in both llama and alpaca. If *L. chavezii* eggs are discovered, Stephen (stephen@suncrow.com) would like to be informed so that a better picture can be formed about the prevalence of this parasite in New Zealand. All information will be held in strict confidence by Stephen.

Overseas single drenches with either the ivermectin family or levamisole have been reported to be effective in dealing with *L. chavezii*. In New Zealand, at this stage, it may be prudent to use a triple drench if *L. chavezii* is suspected as this has been shown to be effective here, so far. This does not imply that there is a resistance to the above mentioned single family drenches. There is no proof of that! The low profile of *L. chavezii* in our New Zealand animals makes me extra careful, until we know more. If you have concerns discuss it with your vet. If you have a dead animal, it is always worth your other animals' while to do a post mortem. Although it may be difficult to find *L. chavezii* specimens then and there, evidence of parasite damage or other clues may be present that can help you deal better with future problems. The intestines can be submitted to the laboratory for adult worm identification. But as long as your animals are healthy and in a good body condition, go about what you are always doing, you are doing fine.

Figure 1: A suspected *Lamanema chavezii* egg.

They differ from *Nematodirus* in being more flat-sided and having a morula in a further stage of development than the typical eight-cell stage normally associated with freshly excreted *Nematodirus* eggs. They also had an obvious yellowish-brown colouration.



Figure 1:

Thanks to Gribbles Veterinary Laboratory for providing the image of the *Lamanema* egg.