

Camelid Health Program – Veterinary Teaching Hospital – The Ohio State University  
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General Recommendation:

Every de-worming program should be tailored specifically to the individual farm: no one policy is going to be appropriate for every situation. These are best worked out in conjunction with your local veterinarian. In general, though, we need to be concerned about the potential for parasite drug resistance in our animals since indiscriminate use of anthelmintics (these drugs are used to treat internal parasite, e.g. Panacur, Safeguard, Ivermectin, etc.) can lead to “problem parasites”, and we only have a limited number of drugs at our disposal. For this reason, periodic fecal exams and judicious use of anthelmintic drugs is the responsible way to ensure that your farm remains disease free.

Some farms may only require dosing for gastro-intestinal parasites twice a year and others may need to wormed every two months. The frequency of de-worming depends a lot on your stocking density and management practices. Also, always dose animals individually based on weights: I strongly encourage you to purchase a set of scales for your farm. Under-dosing is another easy way to induce drug resistant parasites. In 2003, we have seen the emergence of “dual resistance” herds. These herds have intestinal parasites resistant to BOTH ivermectin and fenbendazole. This is a very grave concern, and we have seen many llama and alpaca deaths from this problem. You need to keep vigilant with herd monitoring.

Fecal Exams:

These must be taken from individual animals and not from a communal pooping area. This is important because it allows you to identify particular animals with problems and may show up patterns if you have a herd parasite problem. Take a latex examination glove with a little lubrication and take feces directly from the rectum. Try to collect a good size sample – about half a cup is ideal though labs can work with less. Put it in a clean pot or ziplock bag and clearly label with the animal’s identification and the date. Take samples fresh and send away or give to your veterinarian the same day as soon as possible to prevent deterioration of the sample.

How many samples should I select?

We recommend collecting from 10% or 10 animals in your herd, whichever is the greater number. If you have fewer than 10 animals, then test them all.

Which animals?

If you need to choose between animals, select those that may be a little on the skinny side and from a variety of ages. (While we are on the subject, routine body condition scoring in these heavily fleeced animals will help you keep track of how good your feeding strategy is and also if there may be a parasite problem lurking in your herd.)

It is important that the correct procedure is performed for identifying parasites in camelid feces. Generally, camelids are a lot more susceptible to parasite problems than other species. Therefore, make sure that whoever is going to be doing your fecals knows the correct method to use. At OSU, we recommend doing a Stoll’s test, which involves a 1:5 dilution with a sugar solution. This is a lot more sensitive than a McMaster’s, which uses a 1:100 dilution, and is therefore only able to pick up fecal egg counts down to 100 epg (eggs per gram). If your vet or lab requires further information about these techniques, get them to contact Ohio State University.

Drugs and Doses:

Fenbendazole (Panacur – Safeguard)

These are available in paste and liquid formulations generally to serve the equine and food animal markets respectively, which is usually reflected in the price. Generally pretty safe, they can be used in pregnant dams and crias from a young age if required. Routine dosage: 10 to 20mg/kg. To figure out how much to give using the paste formulation, the weight scale on the plunger is usually based on a 5mg/kg dosage. Therefore, multiply the animal’s weight by 2 to 4 and use the dosing scale based on this. E.G. a 150 pound alpacas would receive

the dose marked for a 300 (at 10mg/kg) to 600 pound (at 20mg/kg) horse. For the liquid formulations, this normally comes in a 10% suspension, which contains 100mg/ml. Thus for a 20 mg/kg dose, you will need to give 2 ml per 10 kg (or 22 pounds) or 10 ml per 50 kg (or 110 pounds). You can use an oral dosing syringe for this or a dosing gun, which normally comes with the larger packets. Fenbendazole is available in a medicated feed formulation. This approach should only be used if you can ensure that all the animals receive their prescribed dose: feeding in separate bowls may work, but ensure that the animals low in the pecking order also receive theirs. Because of the higher dose recommended in camelids, animals may be required to eat more than they should, and there can be the risk of grain overload.

#### Albendazole (Valbazen)

This drug uses a similar mode of action as fenbendazole but not quite as safe. Do not use in pregnant animals if possible, and use care when giving to young crias. This drug has much better coverage for tapeworms than fenbendazole. This only comes in an oral suspension. Dosage = 10mg/kg.

#### Avermectins (Ivomec – Dectomax)

These are widely used for meningeal worm control. Meningeal worm prevention programs usually require ivermectin or doramectin to be given by injection every 30 to 45 days, respectively. Certain types of gastrointestinal parasites, such as nematodirus/whipworms/tapeworms, are highly resistant to avermectins. They are not to be relied upon for control of gastrointestinal parasites. Available in injectable (1% solution = 10mg/ml), oral paste, and feed additives. Dose: 300ug/kg (1cc of 1% injectable solution per 70 pounds of body weight).

#### Specific Problems:

We are increasingly diagnosing resistance among intestinal parasites in llamas and alpacas. We recommend doing a follow-up fecal exam 2 weeks after treatment to confirm that the treatment has worked. A fecal egg count reduction test (checking the parasite egg count before and 14 to 21 days after de-worming medication is given) allows evaluation of de-worming efficacy. We expect to see >90% egg reduction if successful. These tests should be done using the Modified Stoll's Fecal Test – this is the only test available sensitive enough to detect the low egg counts expected after de-worming.

#### Nematodirus or Whipworm (Trichuris)

These parasites are notoriously variable egg shedders (even when one egg identified on a fecal exam suggests a problem). Aggressive treatment may be required. Dose fenbendazole at 20mg/kg for 5 consecutive days.

#### Significant Strongyle Load

Typically, a single dose of any of the various de-wormers discussed is adequate for most strongyles. Occasionally, heavy burdens are seen. Treat animals for 3-5 days at 20mg/kg dose of fenbendazole when burdens are severe or damage from larval migrations is suspected.

#### Moderate Strongyle Load

A single dose of ivermectin, fenbendazole, or albendazole may be sufficient. If the animal is severely thin, then we recommend using 3-5 day course as discussed.

#### Tapeworms (Moniezia)

Albendazole has a better efficacy for tapeworm than fenbendazole. Use a 5-day course of fenbendazole at 50mg/kg once daily.

#### Coccidia (Eimeria)

Coccidia are protozoan parasites. Anthelmintic drugs as discussed for intestinal parasite treatment are not as effective against protozoa. Coccidia is treated with sulfa drugs (sulfadimethoxine = albon), but is prevented by using specific drugs such as amprolium (Corid) or decoquinatate (Decoxx). Label directions should be closely followed because overdosing these drugs can be harmful to the animals.