# Do Your Own Fecal Test

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Doing you own fecal testing is not difficult, and it is a very useful skill to have in caring for your alpacas and llamas. There is a small investment of about $200 US for supplies and tools, which will pay for itself very quickly. You will no longer have to take your fecal samples to a vet to find out if an animal has a worm problem. You can walk out to the pasture at any time, and collect as many samples as needed, and run a test in about one hour.

## Supplies Needed


- A Microscope with 10X, 40X, and 100X power objectives and a built in light. You can pay a lot of money for a microscope, but if you look around, you can find a good one for your purposes under $100. Home Training Tools and American Science & Surplus both offer excellent microscopes, test tubes, scales, and science glassware and kits at very reasonable prices.
- Blank Slides
- Slide cover glasses/ aka coverslips - small, very thin cover glasses fit on a slide, temporarily flattening the liquid specimen
- A Scale that measures grams.
- Disposable latex gloves- Walmart and most pharmacies carries them.
- A Timer - Walmart carries these in the cookware dept.
- 3 measuring cups/beakers - one that holds at least 30-50 ml, one that can measure 25 ml, one larger one that you can strain into. It's real handy if the larger cup/beaker has a pouring spout. If it doesn't you may need a small funnel.
- Small Strainer - Walmart carries these in the cookware dept.
- Craft Sticks (small popsicle sticks) - Walmart carries these in the craft dept. You can also use plastic spoons.
- Test tube or glass vial that holds 20 ml - (16X150mm tubes hold 20 ml)
- Test Tube Holder * or hunk of styrofoam with a hole dug out to nicely hold a test tube
- Floatation Solution - See below for instructions on making your own solution.
- Knowledge of what worm eggs & oocysts (coccidia eggs) look like- See below
- Paper and pen

## How to make your own floatation solution

You can buy "Fecasol" solution, but it's much, much cheaper to make your own solution. You will make a "saturated solution" with epson salt. Place excess epsom salt into hot tap water, until that the water cannot dilute any more salt. This will cause the water/Epson Salt solution to become heavier than just regular water. Thus, the worm eggs will float to the surface of the solution during your test, and the fecal debris will sink to the bottom. (Note that some vets recommend using a suger solution instead. Make it the same way).

1. Purchase some epson salt at any drug store.
2. Put some of the Epson Salt into a jar with a tight fitting lid. Fill about 2/3 full with hot tap water.
3. Shake or stir the jar well.
4. Add more Epson Salt and shake/stir again.

5. Over a 24 hour period, keep adding more epson salt and shaking until you have a permanent layer of epson salt in the bottom of the jar. No more Epson Salt will dissolve in the water. You now have a saturated Epson Salt floatation solution. Pour off the solution into another jar, leaving behind the non-dissolved Epson Salt grains to make the next batch.

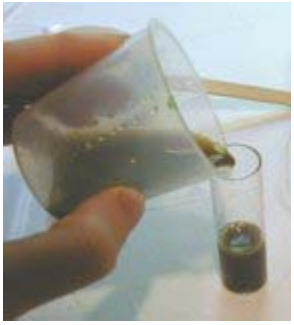
## How to perform fecal tests

You must be very precise and scientific about the steps in performing a fecal test, because that's the only way to get accurate, consistent results. The steps are not difficult, quite simple in fact. But just remember to be very precise and accurate and to keep accurate records. The following procedure gives step-by-step instructions.

1. Collect fresh poop beans for the fecal sample. If you are collecting from several animals, put each sample in a separate plastic baggie and write the animal's name on the baggie.
2. Weigh out 2 grams of poop. I prefer to weigh the sample because you get much more consistent results. 2 grams is about 1/2 teaspoon.
3. Put the poop in a small cup or beaker that can hold 30-50 ml and mash it up really well with the craft stick or th handle of a plastic spoon.

4. Slowly add, while stirring, 25ml of floatation solution. Stir well.
5. Let the sample sit for 2 minutes.
6. Strain the poop solution into the larger cup or beaker. Press the poops really well to force as much liquid out as possible.
7. Let the liquid sample sit for 2 minutes.


8. Set test tube in the holder, and pour the solution into the tube. Fill it a little more than full, so the solution overflows slightly. The solution should form a slight dome above the rim of the test tube.

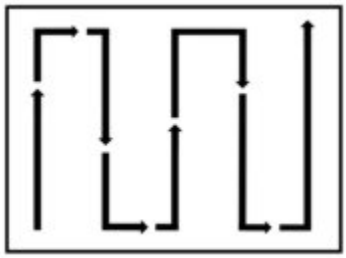


The photos show a flat bottomed test tube called a "shell vial". These are harder to find and more expensive than real test tubes. But test tubes work fine.

9. Carefully place a coverslip on the test tube. The solution should touch the coverslip.

10. Let sit 30 minutes. The eggs will float to the top of the solution and collect on the coverslip. (Note: many vets recommend a minimum of 24 hours or the use of a centrifuge)
11. Carefully remove the coverslip by lifting it straight up and place it (wet side down) on a slide.

12. Place the slide on your microscope. At 10X power, look through the microscope and find a corner of the cover slip. This is your examination starting point.
13. Search the slide by moving it slowly in an up and down pattern. Moving the slide while looking in the microscope is like looking in a mirror, when you want to move the slide right, you really move it left, when you want to go "up" and move the slide "down". You'll get the hang of it with a little practice.



14. Start looking for worm eggs. You aren't actually going to see worms, just worm eggs, except vary rarely you may see a lungworm worm. Every time you see a worm egg, make a mark on your paper.

**Recognizing and Identifying Eggs**

The eggs are small, so take your time and keep looking. You will see all sorts of stuff in the poop that is very interesting. Eventually you will probably see a worm egg, and from then on, you will know what you are looking for. You may see lots of stuff that looks like worms, but remember that the alpacas and llamas eat lots of varied and fibrous plants and the cells of these can sometimes look long and wormlike. You are looking for oval shaped eggs, like egg pictures below.

If you locate, what you think is a worm egg, you can switch your microscope to 40X or 100X power to get a really good look. If your microscope has a "pointer," place the pointer right next to the item, so you can easily find it when you switch to a different objective. Be careful using 40X and 100X power, and adjust the focus very slowly. When using the more powerful objectives, the lens gets so close to the slide that you can accidentally break the slide with the lens. This isn't good for the slide or the microscope lens.

Note: There will be air bubbles, probably lots of bubbles, so don't mistake these for eggs. At first, you will probably think the bubbles are eggs, but air bubbles are perfectly round and have very dark edges and clearish and/or bright centers. Once you realize what bubbles, you won't mistake them for eggs. When you are done, count the total marks you've made, this will be the total number of eggs you saw. Now divide the number of found eggs by the number of grams of fecal matter, with which you started. Starting with a 3 gram fecal sample, 10 found eggs would be 3.3 eggs per gram. 42 found eggs would be 14 eggs per gram, and so on.

**Evaluating the Results**

How many eggs is too many and constitute an infestation? Most alpacas and llamas have worms, so, do not panic if you find worm eggs in the sample; that is normal. There is no shame if your animal has worms. A healthy animal can function quite well with a "normal" worm load. Its body can naturally digest and absorb its food and remain anemic-free. But when the animal undergoes stress and other health problems, it becomes susceptible to worm infestation. Large amounts of rain and warmth can also increase worms and parasites in the pasture. Unfortunately, worms and parasites may become resistant to worming medications.

The goal is not to have your animals be totally worm free, but just to maintain a consistent low wormload, with the animal showing no signs of parasite infestation. It this way, it builds natural resistance/immunity to worms and parasites.

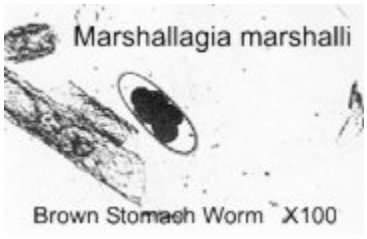
You need to consult with you vet about recommendations for worm counts. In my area (East Texas), my vet recommends that 10 eggs per gram indicates that worming is required. If the count is lower than 10 eggs per gram, say 5 to 7 eggs, I resample in 2 weeks.

When you are treating your animals with chemical wormers, it is standard procedure to identify the exact type of worm eggs, so that you are properly treating with the correct chemical wormer. Different wormers kill different worms. Your vet can advise you about which wormer medications are appropriate.

NOTE: Be aware that you cannot always see signs of LUNGWORMS in a fecal sample, due to the fact that mature Lungworms reside in the lungs and not the digestive system. Your animal may have Lungworm, and it not show up in a fecal sample.

## Parasite Eggs/cysts

The following table shows images of common parasite eggs found in alpacas and llamas (and other animals). For more detailed information about veterinary parasitology, please see the *Veterinary Parasitology: Reference Manual* by By William J. Foreyt.

| **Common Parasite Eggs** | **Symptoms and Drugs** |
|---|---|
| **Brown Stomach Worm**<br>scientific name: Marshallagia marshalli<br>  <br>  | Prevalent in llamas and alpacas. Diarrhea and stunted growth.<br><br>albendazole, fenbenzadole, ivermectin, doramectin, synanthic, levamisole. |

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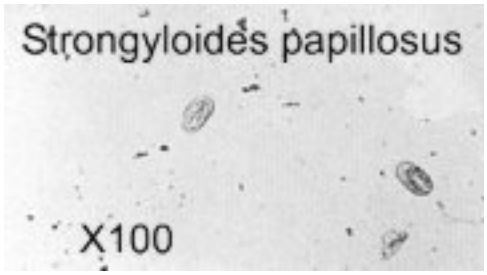
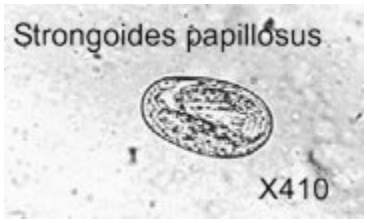
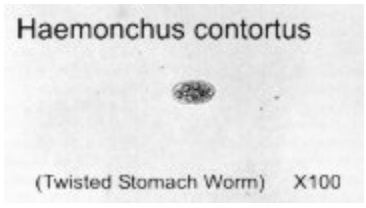
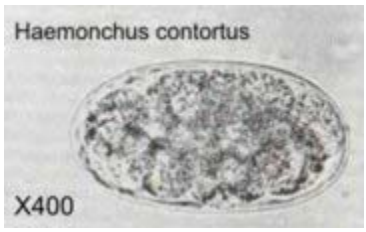
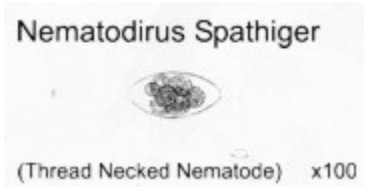
|---|---|
| **Thread worm**<br>scientific name: Strongyloides papillosus<br><br>  <br><br>  <br> | Prevalent in llamas and alpacas. Diarrhea and stunted growth.<br><br>albendazole, fenbenzadole, ivermectin, doramectin, synanthic, levamisole. |
| **Twisted Stomach Worm (aka Barberpole Worm)**<br>scientific name: Haemonchus contortus<br><br>  <br><br>  <br> | Diarrhea, stunted growth.<br><br>albendazole, fenbenzadole, ivermectin, doramectin, synanthic, levamisole. |
| **Nematode (thin-necked worm)**<br>scientific name: Nematodirus<br><br>  <br> | Common in llamas and alpacas. Diarrhea, stunted growth.<br><br>albendazole, fenbenzadole, ivermectin, doramectin, synanthic, levamisole, mebendazole. |

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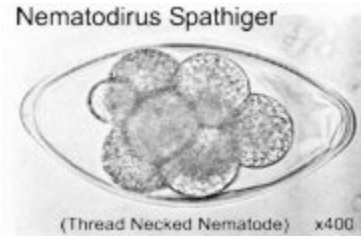
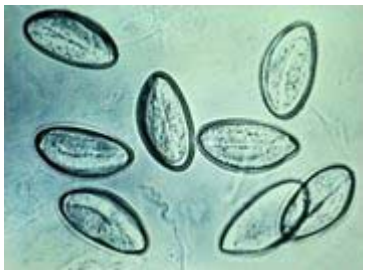
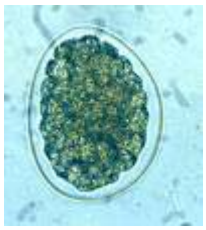
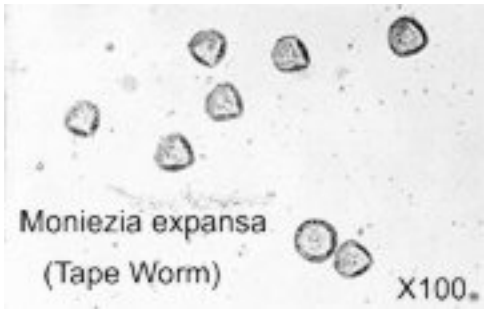
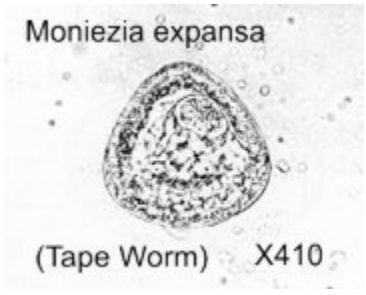
|  | |
| **Ascarid (Pinworm)**<br>scientific name: Nematodirus<br>   | Poor appetite. Intermittent diarrhea, stunted growth.<br><br>fenbenzadole, ivermectin, synanthic, levamisole, mebendazole. |
| **Tapeworm**<br>scientific name: Moniezia, Note the pearl shaped embryo which contain 6 hooklets<br>  <br>  | Eggs can be difficult to detect in fecal. May see worm segment in feces.<br><br>fenbenzadole, valbazin, droncit. |
| **Hookworm**<br>scientific name: Moniezia, Note the pearl shaped embryo which contain 6 hooklets | Eggs can be difficult to detect in fecal. May see worm segment in feces.<br><br>fenbenzadole, valbazin, |

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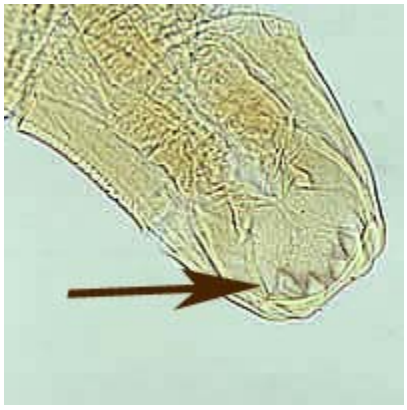
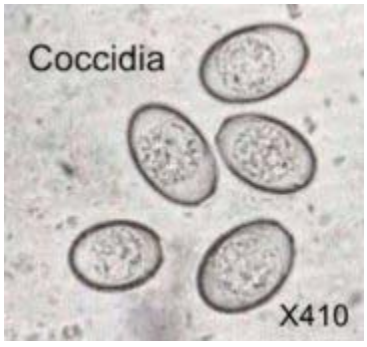
|---|---|
|  <br>  | droncit. |
| **Coccidia**<br>Notice they look like hard boiled eggs split in half, with the yolk clearly visible in the middle Note: Coccidia are about 1/4 the size of stomach worms.<br>  <br><br>  <br> | Ball stool, diarrhea.<br>Common in young animals.<br>Amprolium (corrid), sulfamethazine. |