

How to Identify and Monitor Internal Parasites in your Small Ruminant Herd

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What is the Difference Between a Fecal Floatation Test and a Fecal Egg Count Test?

A fecal floatation test is more sensitive and will allow you to identify more types of parasites. You can use it to determine if animals are infected with *Haemonchus*, *Ostertagia*, or other types of intestinal parasites. The fecal floatation test helps to detect the presence of worm eggs but does not indicate the exact amount in a fecal sample. On the other hand, a fecal egg count test, which is more complicated to perform, detects the number of worm eggs in 1 gram of feces.

What You Will Need to Carry Out a Fecal Floatation Test:

Compound microscope (at least 10x magnification; 40x allows better identification)

Microscope slides

Microscope cover slips

Fecal floatation solution

Fecal floatation containers (may be washed and reused)

Stirring stick (coffee stirring sticks work well)

Strainer (3-4 inch diameter kitchen tea strainer)

Disposable cups (3-4 oz. wax coated work well)

Fecal Floatation Directions

1. Place 1 to 2 balls of feces into disposable cup (3 to 4 if young lambs/kids).
2. Mix with about 10 mL of fecal solution.
3. Stir mixture, breaking up and dissolving fecal pellet.
4. Using tea strainer, pour mixture through strainer into a separate cup.
5. Pour fluid contents into a fecal container.
6. Add fecal solution until fluid level is just above the container rim.
7. Place microscope cover slip on top of the container and let sample sit for 10 to 15 minutes (very important).
8. Carefully remove the microscope cover slip and place it on a microscope slide.
9. Place microscope slide on stage of the microscope and focus.
10. Search slide for parasite eggs or oocytes in a methodical direction from top to bottom and side to side.



Using a Microscope

Using a microscope, like many other things, takes practice.

1. Put the microscope slide on the stage.
2. Move the dials that move side to side and up and down until the sample is directly over the light source.
3. Adjust the eye pieces (codicils) to your comfort. First, focus on the lowest magnification. To do this, look through the eye pieces and adjust the course focus until the image appears (image may be blurry). Use the fine focus for further adjustments until image is seen clearly.
4. Assess the sample by moving across, down, and in rows to examine the entire slide.

Note:

It is prohibited by the Kentucky Board of Veterinary Examiners to diagnose disease in animals if you are not a licensed veterinarian. While doing fecal tests on your own animals is allowed and encouraged to detect and treat intestinal parasites in your herd, you CANNOT perform this service for other farmers if you are not a licensed veterinarian. http://www.cfsph.iastate.edu/FastFacts/pdfs/contagious_ecthyma_F.pdf

Identification charts are helpful to keep as a reference. You may get one from your local veterinarian.

Guide to Internal Parasites of Ruminants
Sponsored by Intervet—providers of Panacur®/Safe-Guard® to the livestock industry.

Ostertagia (brown stomach worm)
• Suppresses appetite
• Weight loss, poor body condition
Haemonchus (barberpole worm)
• Anemia
• Death common in sheep and goats
Trichostrongylus (barkeep worm)
• Watery diarrhea
• Stowed growth
Cooperia (small intestinal worm)
• Diarrhea
• Stowed growth
Nematodirus (threadneck worm)
• Diarrhea
• Stowed growth
• Emaciation and death in sheep, young cattle
Oesophagostomum (nodular worm)
• Diarrhea
• Stowed growth
Bunostomum (hookworm)
• Anemia
• Weight loss
Strongylidae (threadworm)
• Diarrhea in young
• Fatal infections reported in young raised on sawdust
Trichuris (whipworm)
• Reduced appetite
• Stowed growth
Coccidia
• Bloody diarrhea in young cattle
• Death can occur in calves, lambs, kids and adult goats
Moniezia (tapeworm)
• Bloated small intestine in lambs
• Loss of nutrients
Dictyocaulus (lungworm)
• Cough
• Reduced appetite and milk production
Mite Egg - 1/4 actual size
(contaminant - often mistaken for worm eggs)

Health Impact and Characteristics of Internal Parasites

Parasite	Approximate Length (µm)	Characteristics
Ostertagia (brown stomach worm) • Suppresses appetite • Weight loss, poor body condition	60-70	Medium-sized, standard strongyle egg; barrel-shaped side walls; large number of blastomeres nearly fills egg
Haemonchus (barberpole worm) • Anemia • Death common in sheep and goats	85	Larger and rounder than <i>Ostertagia</i> egg; blastomeres more easily seen than in <i>Ostertagia</i>
Trichostrongylus (barkeep worm) • Watery diarrhea • Stowed growth	85	Often shaped like a kidney bean; one side is more rounded than the other; there is usually a lot of clear space within the egg
Cooperia (small intestinal worm) • Diarrhea • Stowed growth	75-85	Medium-sized egg with parallel sides and numerous blastomeres that are hard to distinguish
Nematodirus (threadneck worm) • Diarrhea • Stowed growth • Emaciation and death in sheep, young cattle	200	Large egg looks like an American football with basketballs inside; two to eight large blastomeres are surrounded by a fluid-filled cavity
Oesophagostomum (nodular worm) • Diarrhea • Stowed growth	95	Medium-sized to large egg; about one and a half times the size of the <i>Ostertagia</i> egg; 16 to 32 blastomeres; are easier to see than those of <i>Haemonchus</i>
Bunostomum (hookworm) • Anemia • Weight loss	100	Medium-sized to large egg; four to eight blastomeres; sometimes the walls are thick and rectangular
Strongylidae (threadworm) • Diarrhea in young • Fatal infections reported in young raised on sawdust	40-65	Small egg with a thin shell containing an L1 larva that can be seen under low power
Trichuris (whipworm) • Reduced appetite • Stowed growth	75	Egg is shaped like an American football and has two protruding polar caps; the shell is double and thick
Coccidia • Bloody diarrhea in young cattle • Death can occur in calves, lambs, kids and adult goats	16-47	Coccidia appear small in size, pink in color; size and shapes vary depending on species
Moniezia (tapeworm) • Bloated small intestine in lambs • Loss of nutrients	80-80	Quadrangular; somewhat irregular; contains a circular or pear-shaped apparatus at one end
Dictyocaulus (lungworm) • Cough • Reduced appetite and milk production	400	Rectal sample of feces needed for positive identification; L1 larva found in feces; flattened head and tail end in blunt point

Modified Wisconsin Sugar Fecal Worm Egg Flotation Method

1. Measure 3 grams of fecal material into a 3.5 oz. paper cup.
2. 15ml sugar solution is added to fecal matter.
3. Stir solution and fecal matter until material has even consistency.
4. Pour mixture into tea strainer and collect in 3.5 oz. cup.
5. Use a tongue depressor to press as much material through strainer as possible.
6. Pour strained mixture into a conical graduated 15 ml centrifuge tube. Place tube into centrifuge at 800-1000 rpm for 5-7 mins.
7. Place tube in rack and top off with sugar solution (fills a meniscus). Cover with 2x2mm cover slip and set aside for 2-4 mins.
8. Lift cover slip directly upward and immediately place on microscope slide.
9. Use microscope to scan entire cover slip for egg count.

1. Fecal samples can be stored for long periods if refrigerated (not frozen).
2. Sugar solution is prepared by adding 1 lb. of sugar into 12 fluid oz. (355 ml) of hot water; stir until all sugar is dissolved.
3. Slides can usually be placed in the refrigerator for several days prior to reading.
4. Identify parasites present:
+(-)10 eggs/sample +(-)1-50 eggs/sample +++(over 50 eggs/sample)
5. # of eggs found x 150 = # of eggs per pound feces
6. Materials needed:
a. Sugar solution plus dispensing bottle, gun, or syringe
b. Tea strainer
c. 3.5 and 5 oz. Dixie cups
d. Tongue depressors
e. Taper bottom test tubes
f. Test tube rack
g. Standard microscope slides
h. Centrifuge
i. Microscope