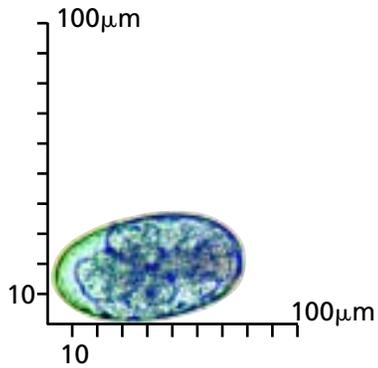


# Guide to Internal Parasites of Ruminants

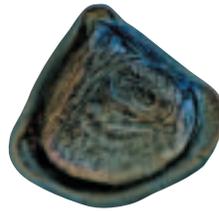
Sponsored by Intervet—providers of Panacur®/Safe-Guard® to the livestock industry.



**Ostertagia**  
(brown stomach worm)



**Cooperia**  
(small intestinal worm)



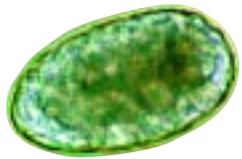
**Moniezia**  
(tapeworm - sheep)



**Moniezia**  
(tapeworm - cattle)



**Bunostomum**  
(hookworm)



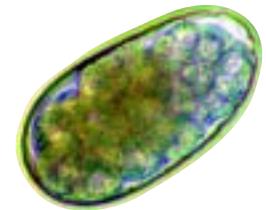
**Haemonchus**  
(barberpole worm)



**Nematodirus**  
(threadneck worm)



**Trichostrongylus**  
(bankrupt worm)



**Oesophagostomum**  
(nodular worm)



**Trichuris**  
(whipworm)



**Strongyloides**  
(threadworm)



**Coccidia**  
(a protozoan that causes coccidiosis)



**Dictyocaulus**  
(lungworm)



**Mite Egg** - 1/4 actual size  
(contaminant - often mistaken for worm eggs)

# Health Impact and Characteristics of Internal Parasites

Parasite	Approximate Length (µm)	Characteristics
<b>Ostertagia</b> (brown stomach worm) ▪ Suppresses appetite ▪ Weight loss, poor body condition	60-70	Medium-sized, standard strongyle egg; barrel-shaped sidewalls; large number of blastomeres nearly fills egg
<b>Haemonchus</b> (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>
<b>Trichostrongylus</b> (bankrupt worm) ▪ Watery diarrhea ▪ Slowed 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
<b>Cooperia</b> (small intestinal worm) ▪ Diarrhea ▪ Slowed growth	75-85	Medium-sized egg with parallel sides and numerous blastomeres that are hard to distinguish
<b>Nematodirus</b> (threadneck worm) ▪ Diarrhea ▪ Slowed 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
<b>Oesophagostomum</b> (nodular worm) ▪ Diarrhea ▪ Slowed 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>
<b>Bunostomum</b> (hookworm) ▪ Anemia ▪ Weight loss	100	Medium-sized to large egg; four to eight blastomeres; sometimes the walls are thick and rectangular
<b>Strongyloides</b> (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
<b>Trichuris</b> (whipworm) ▪ Reduced appetite ▪ Slowed growth	75	Egg is shaped like an American football and has two protruding polar caps; the shell is double and thick
<b>Coccidia</b> ▪ Bloody diarrhea in young cattle ▪ Reduced weight gains in sheep, goats, 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
<b>Moniezia</b> (tapeworm) ▪ Blocks small intestine in lambs ▪ Loss of nutrients	80x80	Quadrangular; somewhat irregular; contains a circular or pear-shaped apparatus at one end
<b>Dictyocaulus</b> (lungworm) ▪ Cough ▪ Reduced appetite and milk production	450	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. 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:  
+(1-10 eggs/sample) ++(11-50 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	e. Taper-bottom test tubes
b. Tea strainer	f. Test tube rack
c. 3 oz. and 5 oz. Dixie cups	g. Standard microscope slides
d. Tongue depressors	h. Centrifuge
	k. Microscope