
Browsing Academy
FECAL ANALYSIS
ANTHELMINTIC SELECTION
& USE PART II



In Part One, I discussed a field technique for fecal analysis. To make the best use of fecal analysis as a management tool, consistency and persistence is utmost. Keep accurate and precise records on the data sheet (Table 1) as this information will be discussed and used in Part Three (Grazing Management) as well as in Part Two.

There are visible signs of a parasite load increase that you need to become familiar with. These can include diarrhea, anemia (the inside of the eyelid turns white, gums become extremely pale), fluid can build up under the jaw (bottlejaw), ill-thrift, performance diminishes (weight loss, milk production declines) and death can result. The non-visible signs include protein repartitioning, increased energy requirement, and reduced calcium and phosphorus absorption by the small intestine. There can be individuals in a mob that do not express clinical signs but carry a load of parasites waiting for the right situation (climatic change, physiological stress, management induced stress) to express themselves. These problems can be identified during fecal egg counting.

In the process of counting and identifying internal parasite eggs, you will notice that young goats have more coccidia (*Eimeria*) oocysts present than do older goats. Counts above 1500 for young goats indicates coccidiosis, time for treatment and a drastic change in management. There are various products on the market – Decoquinate (DeCox), Bovatec, amprolium, the sulfas - and each has a specific/different application. Decoquinate and Bovatec are fed in balance with protein and energy in a young goats diet. Amprolium and the sulfas can be used in the drinking water or used as a drench. Be sure the weight of the individual is known and the concentration of the drug mixed accordingly.

ALWAYS check with your veterinarian before using any medications as not all drugs are labeled as FDA approved for use in goats. FDA regulations require a valid client-patient relationship (meaning your veterinarian has been to your farm and knows your goats) before off-label drugs (dewormers) can be used (recommended). When making management changes, wean into areas that have high quality mixed vegetation and vegetation that has more than 6 inches of regrowth. Vertical distribution of infective larvae can appear at 5 – 6 inches and is more relevant after dew (early morning) or irrigation. NEVER UNDER ANY CIRCUMSTANCES place feed on the ground, keep mobs of the same age and sex together, FRESH water always accessible, and keep STRESS levels to a minimum.

Cryptosporidiosis, caused by a coccidian parasite, is a disease of very young animals. The disease is usually self-limited after several days of diarrhea but can be costly due to dehydration. With severe dehydration, rehydrate (RESORB is my product of choice) for at least 8 feedings (2 days) and slowly reintroduce dams milk. With severe dehydration in the older kids, rehydrate with added electrolytes, vitamins, minerals, yeast or probiotics, yogurt, iron (injectable or

oral), and a supplemental energy source. Antibiotics can be used to prevent secondary infection but probiotics must be given at the same time.

Both coccidiosis and cryptosporidiosis can be prevented by eliminating stress, crowding, unsanitary conditions and pasture management. An aggressive health maintenance program is much cheaper - financially and mentally - than management induced wrecks.

Now it is time to take out the internal parasite data sheet (Part 1, Table 1) and evaluate your individual goat, specific mob or pasture status. If fecal egg counts are between 50 to 80 eggs per gram, consider initiating a pasture change within the next few days (unless on irrigated pasture or the weatherman says rain, make the change now); between 80 to 100 eggs per gram, change paddocks right now and keep a very close watch on the individuals involved; between 100 to 140 eggs per gram, initiate a deworming practice.

Before deworming, there are factors relating to the goat and the internal parasite that determines choice of anthelmintic. Know the age and body weight of the individuals, physiological status (pregnant, lactating, weaned), climatic conditions (dry, humid, rainy), nutritional status and type of internal parasite eggs found during fecal analysis. Know the life cycle of the worm identified and use management practices that help reduce worm loads. By keeping the data sheet and doing fecal analysis 3, 7, 10, 17 21, and 28 days after deworming, resistance to a dewormer on your farm can be suspected if the efficacy of the dewormer has not shown a decrease of more than 90 percent of the parasite load.

There are many dewormers on the market and depending upon the manufacturer, usage and dosage rate may vary. READ the label and be sure the dosage rate is calculated to the body weight (BW) of the mob. Do not use the average weight, dose to the heaviest individuals in a mob. That is why it is important to have the class and age of goat together in management. I have cited a literature review for further information on the wide range of anthelmintics available, specific usage, withdrawal, dosage rate, internal (or external) parasite affected and efficacy of the dewormer. Table A (combined data) is for convenience referencing some of the dewormer choices on the market today. ALWAYS consult your veterinarian with whom you should have a solid base and established respect.

I will make a few comments that have proven helpful in managing a goat herd out of an internal parasite problem.

After fecal analysis for parasite identification, select and drench with a dewormer, but do not move goats immediately to a fresh pasture. If using a benzimidazole, let the goats defecate for 2-1/2 to 3 days in the old pasture or designated area and with the avermectins, at least a 4 day defecation time. If the goats have been stressed and nutritional status is poor, a designated area helps as high quality native vegetation or hay and a supplement can be fed. The goats need to get back into a positive protein:energy balance to help the immune system build resistance and prevent reinfection. When the infestation of internal parasites is extremely high, deworm again 17 days after the first deworming if analysis dictates. Know the manufactures expiration date of the product and keep the dewormer in a cool, DARK, place.

It has also been advantageous to corral the goats in an afternoon, with water and no feed, and deworm them early the next morning. After deworming, feed the goats in the early afternoon in the designated area.

Safeguard and Panacur are the same product in the family of white drenches. There have been no reported side effects if given to goats at five times the recommended dose for cattle. I have used cattle injectable Ivermectin ORALLY (more concentrated than the sheep form and less waste when drenching). I use it at 1.3 times the recommended dosage for cattle (approximately 1cc per 75 pounds of body weight). The efficacy obtained has been 98%. I do not use Valbazen in females during the first 45 days of pregnancy but find it most useful if given 7 days before kidding to eliminate threadworms that can be passed in the colostrum. It was also my dewormer of choice for weanoffs as it eliminates tapeworms. The dewormer (Valbazen) is given at a rate of 1cc per 15 pounds of body weight.

In a circumstance when bottlejaw arises, advanced therapy with additional injectable iron, complex vitamin B's, and vitamin ADE is warranted. Also drench with a mineral/vitamin/electrolyte mix adding probiotics/yeast to help reactivate rumen microflora.

Feed a high quality, digestible loose mineral supplement that is chelated and contains no more than 10% salt. I use sea kelp (free choice) as a micro-mineral supplement along with the chelated mineral supplement.

Identify the plant specie(s) in your area containing a high tannin level. Use these naturally occurring tannins as a "natural" dewormer while browsing/grazing the goats (ex: plantain, manzanita, sericea lespedeza, the oaks.....).

There are nematophagous fungi that absorb soluble organic nutrients from nematode worms in fecal matter (dung).

Let me know if you are having any problems with doing your own fecal egg counts and keeping the information on the data sheet. Next in this series will be Part Three - Grazing (grass/brush/shrubs) Management to Control Internal Parasites.

SUGGESTED LITERATURE

Smith, M.C. and Sherman, DM 1994. Goat Medicine. pp. 333-340.

Lea and Febiger, Box 3024, Malvern, PA 19355. (610)-251-2230.

Barrel, G.K. 1997. Sustainable Control of Internal Parasites in Ruminants. Lincoln University, Canterbury, New Zealand.

Palmery, W.E. 1996. Anthelmintic Resistance in Goats. Dept. of Vet. Pathology, Massey University, Palmerston North, New Zealand.

VI International Conference on Goats (Volume 2). 1996. International Academic Publishers, 137 Chaonei Dajie, Beijing, 100010, The People's Republic of China.

- VII International Conference on Goats (Volume 2). 2000. pp. 789-810. Organizing Committee, Institut de l'Eevage, 149 ruede Bercy, F-75595, Paris, CEDEX 12.
- Smith, M.C. 1990. Advances in Sheep and Goat Medicine. (Vet.Clinics of North America). Saunders Company, Curtis Center, Independence Square West, Philadelphia, PA.
- Zajac, Anne. 1997. Controlling Goat Parasites. Goat Rancher (July). 731 Sandy Branch Road, Sarah, MS 38665.
- Sloss, M.W., R.L. Kemp, and A.M. Zajac. Veterinary Clinical Parasitology, 6th Edition, ISBN-0-8138-1733-1, Iowa State University Press, Ames, Iowa, 50014.
- Georgi, J.R. and M.F. Parasitology for Veterinarians, ISBN-0-7216-3058-8, Saunders Publishing Company.
- Parasites of Sheep and The Merck Veterinary Manual, MSD-AgVet, Division of Merck and Co., Inc., Rahway, New Jersey.
- Plumb, D.C. 2002. Veterinarian Drug Handbook. Iowa State University Press. (800)-862-6657. ISBN-0-8132-2442-7.
- Bath, G.F., et al. 2001. Sustainable Approaches for Managing Haemonchosis in Sheep and Goats. FAO Technical Report Project Number TCP/SAF/8821(A).
- Van Wyk, J.A. and G. F. Bath. 2002. The FAMACHA system for managing haemonchosis in sheep and goats by clinically identifying animals for treatment. Vet. Res. 33, pp. 509-529.