



Town & Country Animal Hospital, PC

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Goat Herd Health Program

Principal Health Concerns:

Parasite Control (internal & external)
Vaccinations
Medications usage
Breeding strategy
Milking management

Parasite Control:

- **Periodic fecal examinations** can monitor needs and effectiveness of de-worming program
- **Strategic de-worming:** treating only animals that need to be treated
- When “rotating” products, be sure to rotate drugs, not just brand names to avoid development of resistance
- Read and follow any label “withdrawal time” requirements for meat or milk used for human consumption
- Effectiveness of oral deworming products can be improved by:
 - With-holding food for 24 hours prior to treatment
 - Treat two days in a row (i.e./ full dose twice, 24 hours apart)
- **Objectives of de-worming**
 - Prevent disease in lactating does
 - Prevent does from contaminating spring pasture
 - Prevent disease in suckling and weaned kids
- **Principal parasites**
 - Stomach worms:
 - *Haemonchus contortus* – primary concern, can suck blood from stomach
 - Other worms (*Ostertagia*, *Trichostrongylus*, *Strongyloides*)
 - Most deworming products are aimed at these “worm” parasites
 - Coccidia (intestinal protozoa)
 - Require different medication to prevent and/or treat infections, when identified
 - External parasites
 - Lice, mites
 - Other
 - Nasal bots; flies; *P. tenuis* (“brain worm” of deer)

Products recommended for intestinal/stomach worm control:

- **Levamisole** (Tramisole, Levasole 0.184gm bolus):
 - 1 bolus per 50# (follow label directions)
 - Broad spectrum of internal parasite control
 - Not for use in milking does (when milk is used for human consumption)
- **Ivermectin** (Ivomec 1% Injectable):
 - Use in goats is “extra-label” (i.e. not labeled for goats). Consult with veterinarian.
 - Not for use in milking does (when milk is used for human consumption)
 - Meat goats: Observe slaughter withdrawal time of 45 days
 - 0.1cc per 10# (1.0cc per 110#) by mouth or injected under skin
 - Broad spectrum of internal parasite control, and effective against some external parasites as well.
- **Fenbendazole** (Safeguard 10% Paste or Suspension; Panacur 10% Suspension, 100mg/cc)
 - 5 - 15 mg/kg (2.3 - 7 mg/#) dose range, by mouth
 - Suspension (labeled for horses & cattle): 2.3 - 7cc per 100#
Paste (labeled for horses): Dose as indicated by weight marks on syringe, @ actual weight, or doubled body weight for higher dose (i.e./ 100# goat gets amount for 100# or 200#)
 - Higher dose (10mg/kg), and treating two days in a row, is recommended for broader activity and to limit development of resistance

Medications recommended for prevention & treatment of intestinal coccidia:

- These should be used under direction and/or supervision of veterinarian
 - *Deccox* (feed additive for prevention)
 - *Corid* (amprolium): when used to treat coccidiosis in goats, dose is 1.25cc/10# orally once daily for 5 days.
 - *Albon* (sulfadimethoxine)
- Timing of de-worming
 - Traditionally, de-worm and move to “clean” pasture
 - Recent strategies involve using dewormers sparingly & only on affected animals (**)
 - Timing options (depending on conditions, animal density, and aggressiveness of management):
 - Spring-summer-fall
 - Spring-early summer-late summer-fall
 - Every 2 months from March til November
 - Every 3-4 weeks during pasture season
 - Deworm @ 3, 6, 9, and 12 weeks after turnout in spring

Vaccination Recommendations

- *Clostridium perfringens* Types C + D (“over-eating disease”)
- *Clostridium tetani* (tetanus)
- Other diseases as indicated by farm situation
 - *Chlamydia* (can cause abortion)
 - *Vibrio* (can cause abortion)
- Recommended product:

- “CD/T” vaccine (Clostridium Types C+D, plus Tetanus)
 - Follow label dosing guidelines
 - Usually 2cc under skin (SQ) or in muscle (IM)
 - Initial vaccination twice, 3-4 weeks apart, then yearly
 - Does: yearly CD/T booster in late pregnancy (3-4 weeks prior to kidding)
 - Benefits doe
 - Benefits kids via colostrum
 - Kids:
 - if does were properly boosted –
 - CD/T @ 2-3 months of age & booster 3-4 weeks later
 - if does were not properly boosted –
 - Tetanus anti-toxin at castration, dehorning, etc.
 - Then regular schedule starting @ 2-3 months of age
 - Bucks: yearly CD/T boosters with herd

Other Issues:

Foot-trimming: Regularly, at least 2-3 times per year.

Vitamin E/Selenium (Bo-Se):

- For prevention of “white muscle disease” in kids
- ½ cc under skin (SQ) for kids < 2 weeks of age; 1cc for kids >2 weeks
- usually administered as a single dose (unless directed by doctor)

Breeding issues:

- ~ 5 month gestation period
- Higher ovulation rate if bred on second or later estrus
- “Flush” does with grain prior to and during breeding season to increase ovulation rates

Milking & udder health:

If you are milking goats to provide milk for human consumption, ask veterinarian and/or county agriculture extension personnel for specific information and recommendations regarding milking management. Specific areas to address include:

- Cleanliness & sanitation of udders, teats, and milking equipment
- Milking technique
- Observation of milk for abnormalities
- Recognition and management of mastitis (sampling for cultures, treatment recommendations, etc.)
- Regulatory (testing) requirements

Antibiotic and general medication use:

- Follow label or doctor recommendations regarding dose, route of administration, course of treatment, and storage of medications.
- Observe all “withdrawal times” (for meat or milk intended for human consumption), per label and/or veterinarian recommendation.
- Watch expiration dates. Discard out-dated medications.

- If in doubt, ask your veterinarian.

() Parasite Control Today** (with portions adapted from the Maryland Small Ruminant Page)

With all the issues involved, what's a producer to do to control parasitism in his/her herd? Unfortunately, there is no simple answer or recipe. Recommendations concerning parasite control in small ruminants have taken an abrupt turn in recent years. Data suggest that 80% of the worm eggs on a pasture come from 20-30% of the animals. We also have a better understanding of the role the animals' genetics play in resistance to worms. These changes have led to the development of new management systems which are designed to allow for selective use of anthelmintics, appropriate dosing of appropriate anthelmintics at the appropriate dose, monitoring for anthelmintic resistance and maintenance of a "refugia" of sensitive worms in a herd.

The basis of selective deworming truly focuses on the principle that if we treat everyone at the same time, the only eggs being shed in a couple of days are resistant ones. Untreated animals harbor an invaluable commodity: worms that retain anthelmintic-sensitive genes. These untreated worms are called refugia. They have enormous impact on the next generation of worms on that farm. The refugia dilute out the resistant genes present in worms that survived exposure to the dewormer. The end result is that resistance will be developing much more slowly in that population of worms, thereby prolonging the efficacy of the dewormer.

Effective parasite control will involve a variety of management practices, including the targeted use of anthelmintics. What works on one farm may not work on another. What works one year may not work the next. Each farm, year, and animal is different. As you go down this list of recommendations, ask yourself if they make sense to you and will help control worms on your farm.

Multiple Parasites / Multiple Issues:

- Brainworm (*P. tenuis*) control requires monthly ivermectin injections, for at least several months of the year (May through November, at least).
- Ivermectin injections will contribute to intestinal worm resistance.
- Therefore, other classes of dewormers must be relied upon for internal parasite control, when indicated.

Good management and common sense:

- Provide sanitary conditions for your animals.
- Do not feed on the ground. Provide elevated feeding stations.
- Feed hay, grain, and minerals in feeders that cannot easily be contaminated with feces.
- Keep water receptacles clean. Change water frequently.
- Do not rely on unproven natural products to control parasitism.
- Evaluate does prior to kidding to determine their need for de-worming.
- Do not overstock pens and pastures. Higher animal density greatly increases levels of infection and re-infection.
- Consider keeping animals in a dry-lot (no browse or grass) to keep them from becoming infected with parasites or to prevent re-infection.
- Keep in mind that generally, **20 percent of animals in a herd carry 80 percent of the parasite load.** These animals are not only the

most likely to have clinical problems, but they serve as a source of constant re-infection for others, and contribute greatly to the development of resistant strains of parasites.

Identify if there is a problem, and what the problem is:

- **What parasites are involved?** This can vary from region to region, and even season to season. It is necessary to confirm the specific type of parasite (i.e./ Haemonchus? Ostertagia? Trichostrongylus? Strongyloides?). Different types of strongyles have different levels of pathogenicity (ie/ ability to cause disease) and at different levels of infection. They may also have different levels of resistance to various dewormers. Specific parasite testing must really be done as a “larval culture test”, as the parasitologists tell us that identifying parasite type by egg ID is not reliable.
- **What is the current level of parasite infection, and what level is “acceptable”?** The McMaster’s test is the most quantitative test for fecal parasite analysis, yet the level of eggs being shed is actually not always an accurate reflection of the level of adult worms in the animal. Also, different levels may be “acceptable”, depending on the specific parasite involved.
- **Are there clinical signs (weight loss, diarrhea, and/or anemia) that can be attributed to parasites?** Again, different parasites can cause different clinical symptoms.

Proper anthelmintic use -- manage drug resistance:

- Consider using the FAMACHA© system (a test designed for use in sheep, assessing for evidence of anemia,) to determine which animals should be dewormed for Hemonchus (barber pole worm) infection.
- Administer all oral anthelmintics using a syringe with a long metal nozzle, to **deliver oral medication into the back of the throat** (not just onto the tongue). An inexpensive dose adaptor from Jorgensen (# J-206) fits on any luer-tipped dosing device or syringe. They allow accurate dosing and get the medicine over the back of the tongue where it belongs without trauma.
- If possible, weigh animals to determine **proper dosage** of anthelmintics. Do not under-dose.
- Give **higher dosages of anthelmintics** (typically 2x the sheep or cattle dose).
- If possible, fast animals for 24 hours prior to oral administration of benzimidazole drugs (i.e./ fenbendazole, albendazole) and oral ivermectin. This increases the likelihood of contact between medication and worms.
- Use the “fecal egg count reduction test” (with egg counts before and after de-worming), or the DrenchRite© laraval development assay, to help determine drug efficacy on your farm.
- **Quarantine, fecal test, and de-worm new animals with anthelmintics from two different chemical classes** to prevent the introduction of anthelmintic-resistant worms into your herd.
- Seek veterinary approval for extra-label use of anthelmintics.