

Preventive Health Strategies for Pasture Based Goat Herds

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Grazing and parasite control

When it comes to controlling intestinal parasites in goats, Minnesota does have an advantage over warmer climates. Even the most diligent grazers need to pull their animals off grass and feed them hay for a period of time in the winters. The freezing temperatures and rest gives us a chance to depopulate some worms. Many of the intestinal parasites of goats that reside in the world's warm climates have become resistant to the anthelmintics we have available to us. And there doesn't seem to be any new drugs for us to fall back on in the near future.

We must use the anthelmintics we have – in the correct dosage, at the correct time and in the correct animals – to control one of the most difficult management problems we see in grazed animals – parasites.

To start, we need to understand what we are dealing with.

- *Haemonchus contortus* -the most dangerous parasite is this blood-sucking nematode (stomach worm, barberpole worm). Her cousins, *Ostertagia* and *Trichostrongylus*, can be just as devastating. They are capable of drinking one cup of blood per day from a heavily infested goat. Signs of heavy infestation are loss of weight, diarrhea, lethargy, pale mucous membranes, bottle jaw (fluid accumulation under the jaws) and death.
- Liver flukes – a parasite shared with deer and more commonly found in the northern parts of Minnesota. The intermediate host is a snail. This parasite damages the liver and can cause death. Prevention includes fencing off swampy areas and deer. This parasite cannot be seen in fecal exams.
- Tapeworms – intermediate host is a tiny mite that is ingested while grazing. Generally not thought to cause much damage but visibly displeasing.

Resistant worms have developed as dewormers do not kill 100% of the worms, even when dosed properly. The worms that are left behind are resistant. It is very important to know what worms you are purchasing when you buy goats, especially when they come from southern climates. Isolate your new purchases, run a fecal exam, deworm with a combination of several dewormers, run another fecal exam in 10-14 days. It should be negative before introducing the new goats onto your pasture.

Most producers want easy answers – what dewormer should I use, how many cc's, when should I give it to the goats? There is no easy answer; each farm needs its own strategy. There is some basic information that can be used by everyone.

- Most worms have a 3 week life cycle: The goats eats the larva from the grass; the larva grows to an adult in the goat's stomach or intestines, sucking blood for energy; the adults lay eggs which pass out with the manure pellets and lay on the ground in the grass; the eggs hatch and larvae use moisture to crawl up the blades of grass to be eaten by the goat.
- Try to keep a “**safe**” pasture for spring turnout. Safe pastures are those that have not had goats on them for at least 3 months in the summer and 6 months in the cold weather. **Safe** pastures can be used for harvesting hay and other crops or grazing other species.
- The larvae cannot crawl up grass much higher than 4”.
- The eggs/larvae can live in the pasture for 3 months in the summer and up to 6 months in cold weather.
- The biggest hatch occurs when it rains following a drought.
- Cattle and horses graze at different levels and do not share parasites with goats. Sheep do. Pastures that have had cattle or horses grazing can be thought of as **safe**.
- Worms can “hibernate” in goats over the winter, becoming dormant. They will wake up and multiply with a vengeance around kidding time.
- Overgrazed, overpopulated pastures contribute to heavy worm loads in goats.
- Intensive rotational grazing is not a way to control parasites – it may contribute to the problem if not included in the strategy for controlling parasites.
- We don't have to deworm every goat, every time. It is estimated that 20-30% of the goats carry 80% of the worms.
- Many adult goats have immunity to the worms. Goats under a year are the most susceptible to damage and need the most attention.

Fecal Exams

It is important to monitor the success of your dewormers with fecal examinations. It is recommended to collect fresh pellets from 5-10% of your animals. You can mix them together evenly into a composite sample and have your veterinarian look for eggs. This is best done on the day of your deworming and again 10-14 days later. If there is no change in egg counts, evaluate your dewormer, dosage, timing, etc.

What dewormers are available to us that are effective?

*** the following are recommendations for use. Many will be used in goats in an off-label manner, using dosages higher than labeled. It is suggested to double the cattle meat withholding time for goats. Please work with your veterinarian to determine the best dewormer to use for your herd and what the proper withholding time should be.

- Albendazole (Valbazen) –PO (oral) 10 mg/kg or 5 ml/100#. Also effective against tapeworms and flukes. *Do not use during breeding or pregnancy.
- Doramectin (Dectomax) – SQ .3 mg/kg or 1 ml/75-100#. Similar to Ivomec, best saved for external parasites such as chorioptes.
- Fenbendazole (Panacur, Safeguard) – PO 10 mg/kg or 5 ml/100#. Similar to Albendazole though not effective for flukes.
- Ivermectin (Ivomec, generics) – 1 ml/75# SQ for external parasites, 3 ml/20# PO for internal parasites.
- Levamisole (Levasol, Tramisol) – PO 8-12 mg/kg. The only dewormer mentioned that may cause overdose problems. *Suggested by experts not to be used during pregnancy.
- Morantel (Rumatel) – PO. May be fed to lactating does with no milk withholding.
- Oxfendazole (Synanthic) – PO 10 mg/kg or 5 ml/100#. Similar to fenbendazole.

It is recommended to rotate dewormers annually.

When should I give the dewormer to my goats?

- Hold goats off feed for 12-24 hours prior to deworming.
- Hold goats in drylot 72 hours after deworming, then move onto “**safe**” pasture.
- If you can’t put goats onto a “**safe**” pasture, deworm every 3 weeks until mid –July or so. Then monitor adults, keep deworming the kids if still on pasture.
- Deworm all goats in the winter when taken off pasture. Pregnant does should be dewormed around kidding time and again before entering the pasture. This time around kidding is when the worms are most susceptible. If you can remove most of the dormant worms, there will not be any to bring out to pasture with the goats in the spring.
- If you have a fluke problem, deworm with Valbazen in late fall and repeat in 4 weeks to kill the adult flukes missed the first time. *Be aware of the warning not to use in pregnant does.
- Deworm 10-14 days after a heavy rain, especially following a drought.
- For problem herds – Repeat dose of white wormers (albendazole, fenbendazole) in 12 hours and ivermectins in 24 hours.

FAMACHA strategy for parasite control

FAMACHA was developed in South Africa where many of the intestinal parasites in the meat goats have become resistant to modern dewormers. This method only works for haemonchus control and basic training must occur before using.

A card with pictures of varying degrees of pink color in the eyelids is used to grade the goats. This pink color – or lack of it – correlates to degree of anemia caused by the blood sucking worms. Only the most anemic goats are dewormed.

The theory is that the “pinker” goats still may have worms, but they have learned to live with them in a form of resistance or immunity. These “immune” goats will shed their worms into the environment but they will be sensitive to the dewormers as they have not been exposed to them. The population of worms will eventually become sensitive to dewormers. Keeping records of the goats that do not need to be dewormed will help you in selecting replacements for your herd that may have genetic resistance to worms.

Final Deworming Strategy Tips

- When you deworm, use dosages geared towards the heaviest animal. With the exception of levamisole, dewormers are very safe. Dosages are generally 1.5-2x the labeled cattle dose.
- Use dewormers orally if possible.
- Make sure the dose is given over the back of the tongue, not in the cheek pouch.
- Repeat dose in 12-24 hours.
- Move dewormed animals to “safe” pasture: pastures that have not been grazed by goats or sheep for 3 (summer)-6(winter) months.
- Rotate pastures with cattle and horses.
- Do not graze pastures under 4”. Goats prefer browsing tall weeds and shrubs, anyway.
- Worm life cycles are 3 weeks; deworm before the new batch of eggs are laid.
- Keep deer out of pastures.
- Effectively deworm goats over winter, especially around kidding time.
- Monitor your strategy with fecal exams.
- Animals that are not fed adequately are more prone to the effects of parasitism. Protein levels are especially important.
- Quarantine newly purchased animals and eliminate any worms purchased with them.

Vaccination Recommendations for Goat Herds

Pregnant does: Clostridium CD and tetanus 2-4 weeks prior to kidding. Vaccinate for Chlamydia, campylobacter prior to breeding and mid gestation if necessary to prevent abortions.

Kids: Clostridium CDT at 4 and 8 weeks. Give a third booster at 12 weeks if kids are on heavy concentrates or lush pasture. Some herds need to be vaccinated every 6 months.

Bucks: Vaccinate Clostridium CDT annually with does.

Caseous lymphadenitis (Casebac or Caseous DT) bacterin can be useful in a program to eradicate CL from a herd. It can cause dramatic reactions from the goats so should be used with caution. Work with your veterinarian.

Rabies vaccine can be given by your veterinarian to valuable animals.

Contagious Ecthyma (soremouth) vaccine is a live virus that can be used to prevent outbreaks at inopportune times.

Tips for vaccinating goats:

- Give injections subcutaneously in upper necks, behind elbow or over ribs.
- Expect some swelling, lameness and lethargy for a day or two after vaccinating. Some swellings become permanent knots.
- Use clean, new needles. A whole box of 20 gauge 1" needles is only \$8-10
- Watch expiration dates, keep vaccines refrigerated and shake well.

Salt

- Goats prefer loose salt over blocks.
- Salt should be mixed at 4% of the diet for male goats.
- Loose salt can be used as a carrier for coccidiostats and minerals.
- Use white, iodized salt to prevent goiters and breeding problems.
- Be careful of mineral formulated for sheep as it may not have enough copper and too much molybdenum.
- Be careful of mineral mixes with calcium and phosphorus included. There is a place for them on pastures but make sure you work with a nutritionist to avoid improper ca:p ratios that can lead to urinary calculi.
- Keep your ca:p ratio at least 2.5:1.

Caprine Arthritis and Encephalitis Virus

CAEV is a slow growing virus that causes weight loss and debilitation. It is passed through the colostrum, milk and respiratory secretions to other goats. This virus is very common in the goat population but can be controlled by testing and culling, orphaning and milk pasteurization. The virus does not survive outside the goat for more than a few minutes so environmental contamination is not an issue.

Test purchased goats for CAEV prior to adding to your herd and learn more about this chronic wasting disease of goats.

Eradicating CAEV from your herd will improve productivity and increase the marketing value of your breeding stock.

Tuberculosis

Bovine tuberculosis has recently been diagnosed in cattle (June 2005) and white tailed deer (Jan 2006) in northwestern Minnesota. This finding has changed the regulations other states have placed upon cattle, bison and goats coming from Minnesota.

Goat owners need to be aware of the signs of tuberculosis even though it has not been diagnosed in goats and will hopefully be quickly eradicated from the cattle population by quarantine and testing. The deer population will need to be monitored for levels of infection.

Infected goats become emaciated, may have respiratory signs and diarrhea. Lungs, lymph nodes and intestines may develop granulomatous nodules visible to the naked eye. Tuberculosis is another reason to control the deer population that comes in contact with your goats.

Contact your veterinarian or check the Board or Animal Health's website for more information - www.bah.state.mn.us.