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Small Ruminant Parasite Control

Recommendations concerning parasite control in small ruminants have changed significantly in recent years. There are many issues involved in the control of small ruminant parasites, and often no simple solution. **Resistance to anthelmintic (dewormer) medications** is becoming more common. **Genetics** have been found to play a big role in an animal's resistance to worms. **It has also been shown that 80% of the worm eggs on a pasture come from 20-30% of the animals.** These findings have led to the development of new management systems which are designed to allow for **selective use of anthelmintics (dewormers)**, more **appropriate dosing of appropriate anthelmintics**, **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 after treatment are likely to be the eggs of parasites which are resistant to the medication used. 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.

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. Sometimes, specific parasite testing must be done as a "larval culture test", as the parasitologists tell us that identifying parasite type by egg ID is often 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.

Different Tests for Different Information:

- **Intestinal Parasite Screen by Centrifugation** is usually done as a screening tool to identify the types of different parasites present. It can also be done in a way to provide a "quantitative" result (the "Wisconsin Method" provides an estimate of the number of each type of eggs per gram of feces), rather than just "negative/light/moderate/heavy".
- The **McMaster's Test** is the most **quantitative** test for fecal parasite analysis, because it provides an estimate of the **number of eggs per gram** of feces. For some parasites (mainly **Hemonchus**), this is an

accurate reflection of the level of adult worms in the animal, which can **guide treatment decisions**; however, this is not always the case. Also, different levels may be “acceptable”, depending on the specific parasite involved. The McMaster’s test is also used to measure effectiveness of treatment, by measuring **Fecal Egg Count Reduction** following use of a deworming medication.

- **Clinical Signs (weight loss, diarrhea, and/or anemia)** are very important to correlate with any test result and to guide treatment decisions.

Proper anthelmintic use -- manage drug resistance:

- Learn about the **FAMACHA**© system (a test designed for use in sheep, assessing for evidence of anemia) to help identify animals which 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.
- **For goats, higher dosages of anthelmintics** (typically 2x the sheep or cattle dose) are typically recommended. Consult with a veterinarian about specific dose recommendations.
- 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.
- The doctor may recommend (especially with fenbendazole) **repeating treatment** 2 or 3 times at 24 hour intervals to improve results.
- Use the “Fecal Egg Count Reduction test” (with egg counts before and after de-worming), or the DrenchRite© larval 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 any “extra-label” use of anthelmintics.

Don’t forget 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.
- If necessary, 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. As they would likely pass these tendencies on to their offspring, they should not be used for breeding.

Parasite Management Plan Notes:

__ Veterinarian Consultation: Date: _____ Doctor: _____

__ Test(s) recommended: Centrifugation McMaster’s Fecal Egg Count Reduction

Comments: _____
