



Western Maryland Pasture-Based Meat Goat Performance Test 2016 Deworming protocol

One of the primary goals of the Western Maryland Pasture-Based Meat Goat Performance Test is to identify meat goat bucklings that are more resistant and resilient to gastrointestinal parasites (worms). A resistant goat is one which limits or prevents establishment of a parasite infection. A resilient goat is one which tolerates a parasite load, while maintaining health and productivity.

Criteria

Resistance. Parasite resistance is quantified by fecal egg counts (FECs). A fecal egg count (EPG) is an estimate of the worm load that an animal is carrying, as it is presumed that more worms lay more eggs. The barber pole worm is a very prolific egg-layer. In the test, fecal egg counts are determined bi-weekly by collecting a fecal sample from the rectum of each goat. The samples are collected on ice and sent via overnight mail (on ice) to Virginia State University for analysis. Egg counts (EPG) are determined using the modified McMaster technique.

Sometimes, it is not possible to obtain a fecal sample from a goat. If the first attempt to collect a sample fails, the goat will be recycled through the handling system and a second attempt will be made. It can be especially difficult to obtain a sample from a goat with liquid feces (scours).

Resilience. Parasite resilience is quantified by FAMACHA[®] scores and the need for anthelmintic treatment. FAMACHA[®] scores are an estimate of packed cell volume (PCV) or blood hematocrit. Anemia (low packed cell volume) is the primary symptom of Haemonchosis or barber pole worm infection. FAMACHA[®] scores are determined bi-weekly by assessing the color of the lower ocular membrane of the goat.

Five Point Check[®]. The need for anthelmintic treatment is based on the Five Point Check[®] and other criteria. The Five Point Check[®] is an extension of the FAMACHA[®] system. While the usefulness of FAMACHA[®] scoring is limited to blood-feeding parasites, such as the barber pole worm, the Five Point Check[®] provides evaluation criteria for all parasites that commonly affect small ruminants. It involves five checkpoints on the animal's body: 1) eye, 2) jaw, 3) back, 4) tail, and 5) coat (or nose).

The eye is assessed to determine FAMACHA[®] score (anemia). The jaw is examined to determine the presence of bottle jaw. The backbone, ribs, and loin (back) are handled to determine body condition score. The tail region is examined to determine evidence of past or current scouring (dag score). The coat condition provides a general indication of health and thriftiness. In sheep, the nose is the 5th checkpoint for nasal bots, a parasite that infects the nasal passages and causes snotty noses.

Start of test

To make sure individual differences observed for parasite resistance and resilience are the result of genetics and not environment, all test goats must start the test equally with (near) zero fecal egg counts. To accomplish this, all test goats are dewormed upon arrival to the test site, regardless of their fecal egg counts or need for deworming.

All goats are dewormed sequentially with anthelmintics from all three anthelmintic classes: moxidectin (Cydectin[®]), albendazole (Valbazen[®]), and levamisole (Prohibit[®]). The goats are weighed to determine proper dosages. The dosage recommendations of the American Consortium for Small Ruminant Parasite Control (ACSRPC) are followed. In previous years, sequential treatment has reduced fecal egg counts (on-average) by more than 95 percent. However, treatment has failed to reduce fecal egg counts by 95 percent in some goats and consignments.

Deworming protocol

Goats with FAMACHA[®] scores of 1 or 2 will not be dewormed unless they present with bottle jaw or other clinical signs of parasitism. Goats with FAMACHA[®] scores of 4 or 5 will always be dewormed, regardless of other criteria. Goats with FAMACHA[®] scores of 3 may or may not be dewormed. The decision to deworm goats with a FAMACHA[®] score of 3 will be based on the additional criteria of the Five Point Check[®].

- 1) Evidence of "bottle jaw" (submandibular edema)
- 2) Active scouring (dagginess)
- 3) Body condition score (≤ 2)
- 4) Poor coat condition

Goats with FAMACHA[®] scores of 3 will also be dewormed if one or more of the following risk conditions exists:

- 1) Weight loss (≥ 0.1 lbs.) during previous 2 week period
- 2) Two score decline in FAMACHA[®] score over 2 week period, e.g. 1 \rightarrow 3
- 3) Last fecal egg count was > 2000 epg
- 4) Fecal consistency: score of 1/4 (liquid)
- 5) More than 10 percent of test goats have FAMACHA[®] scores of 4 or 5

Treatment

During the test, parasitized goats will be treated with either levamisole (Prohibit[®] sheep drench) or moxidectin (Cydectin[®] sheep drench). In 2013, a DrenchRite[®] assay determined both of these anthelmintics to be effective against the worm larvae being "seeded" in the pastures by the grazing sheep (before and after test). In addition,

according to various studies, less goat farms have resistance to moxidectin and levamisole as compared to the benzimidazoles (fenbendazole and albendazole) and the ivermectins.

Treated goats with FAMACHA[®] scores of 4 will be put in the treatment pen for observation. Treated goats with FAMACHA[®] scores of 5 will be put in the treatment pen for observation and be given supportive therapy (e.g. Red Cell, B-complex vitamins, etc.) until their scores show some improvement. Goats in the treatment pen will be fed hay and barley.

Goats which fail to show improvement after multiple anthelmintic treatments (and at risk of death) will be removed from the pasture diet. They can be picked up or fed in a pen outside of the test area.

Direct all questions about the buck test and/or deworming protocol to Susan Schoenian at sschoen@umd.edu or (301) 432-2767 x343.

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