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Cornell Goat Extension
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Dear Goat or Sheep Farmer,

Thank you for agreeing to be part of an on-farm study comparing two aggressive treatment protocols to treat neurologic problems caused by deer worm (*Parelaphostrongylus tenuis*) infection. This study is being conducted by the Cornell Sheep & Goat Program and Cornell Ambulatory Veterinary Services.

Upon finding an animal with classic *P. tenuis* infection signs qualifying it for the study, fill in the top part of the "Deer Worm Study - Neurologic Exam SCORE CARD" and start the animal on one of the coded treatments. Your first infected animal should be started on TREATMENT ___ . As soon as possible notify Cornell project staff so that they can visit the farm within 48 hours (ideally 24 hours) to complete the score card and video-record the infected animal. Between day 6 and day 8, we will again visit you to re-score and video-record the animal (after 5 days of treatment). Please record any extraneous interventions you give the animal (e.g. vitamin injections, slinging the animal). The next animal to be naturally infected should receive the alternate TREATMENT ___.

The prognosis for sheep and goats naturally infected with deer worm is uncertain at best. The treatments compared in this study are aggressive and differ only in the exclusion of ivermectin in one of the treatments. Logically, ivermectin should not be able to pass through the blood/brain membrane and, thus, should not contribute to the successful recovery of animals showing neurological symptoms of deer worm infection. However, logic is fallible. Additionally, these drugs are being used off-label following drug withdrawal periods recommended by FARAD (Food Animal Residue Avoidance Database).

Local veterinarians provided input to determine which treatment protocols to compare. Investigators for this study include Drs. Mary Smith (DVM), tatiana Stanton, and Michael Thonney. The results for your animals will be discussed with you and not shared with others unless you state otherwise. We strongly encourage you to discuss the study and your results with your local veterinarian. Your identity and the farm identity will be kept confidential unless you state otherwise. Extension personnel will use proper biosecurity (disinfect boots, change clothes, wash hands) to go from farm to farm. Please feel free to contact Mary or myself with any questions or concerns.

Sincerely,

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INSTRUCTIONS FOR DEER WORM STUDY

Upon finding an animal with classic deer worm (*P. tenuis)* infection signs qualifying it for the study:

1) Fill out the top part of the "Deer Worm Study - Neurologic Exam SCORE CARD". If possible make a short video recording of the animal in motion on your camera or cell phone.
2) Start the animal on one of the coded treatments. Your first infected animal should be started on TREATMENT ___ .
3) **As soon as possible** notify Cornell project staff so that they can visit your farm ideally within 24 hours to assist you with scoring the animal. They will video-record the infected animal during their visit.
4) Please record any extraneous interventions you give the animal (e.g. vitamin injections, slinging the animal).
5) Between day 6 and day 8, have Cornell staff visit again to re-score and video-record the animal (after 5 days of treatment).
6) The next animal to be naturally infected should receive the alternate TREATMENT ___.

Treatment for Deer Worm Infected Animals on the Study

1. Safeguard (10% Fenbendazole) orally for 5 days at 25 mg per kg of live weight (1 ⅓ cc per 10 pounds of live weight). *FARAD provided a meat withdrawal period of 14 days for goats and 54 days for sheep for Safeguard at this dosage..*

2. Dexamethasone injectable 2 mg/mL IM at 0.2 mg/kg live weight for first 3 days and 0.1 mg/kg next 2 days (1/2 cc of Dexamethasone per 10 pounds live weight for the first 3 days, followed by ¼ cc Dexamethasone for next 2 days). **Ewes and does in last month of pregnancy are not to receive Dexamethasone. Instead, they will receive flunixin meglumine (Banamine®) 50 mg/mL at the rate of 1 cc/100 lb live weight (1.1 mg/kg) orally for 5 days. F***ARAD provided a meat withdrawal period of 60 days for Banamine at this dosage.*

3. ¼ cc of either "Product A" or "Product B" SQ for 5 days for each 10 pounds of live weight determined by whether the animal has been assigned to "Treatment A" or "Treatment B". One of these products is an Ivermectin Placebo and the other is Ivermectin 1% injectable administered at 0.5 mg/kg live wt. *FARAD provided a meat withdrawal period of 96 days for both goats & sheep.*

Please start your first deer worm infected animal with TREATMENT ___

Deer Worm Study Kit contains:

Two 3ml syringes for Ivermectin or Dexamethasone

Five 6ml syringes for Ivermectin or Dexamethasone

Two 20ml syringes for Safeguard®

Seven 19 gauge needles

One Drenching tip for Safe-Guard

Two Bottles Safeguard®Dewormer (125ml)

Tube w/ 9ml Flunixin meglumine (Banamine®) with 3ml syringe for oral administration

One Bottle Dexamethasone (100ml)

One Bottle Product "A" (50 ml)

One Bottle Product "B" (50ml)

Please use your own syringes and needles when possible. Contact Dr. Mary Smith DVM at the Cornell Ambulatory Clinic, mcs8@cornell.edu or 607-253-3140 for refills of any of the medical supplies.

Record of Infected Animals

ID Number/Name	Date	Treatment assigned

Treatment protocols for deer worm infected sheep and goats of different weights.	
Animal weight	**Treatment**
33 lb (15 kg)	• ¾ cc of Product A or Product B SQ for 5 days • 4 cc Safeguard® (10% Fenbendazole) orally for 5 days • 1 ½ cc Dexamethasone injectable 2 mg/mL IM for 3 days, followed by ¾ cc for 2 days[1]
44 lb (20 kg)	• 1 cc of Product A or Product B SQ for 5 days • 5 ⅓ cc Safeguard® (10% Fenbendazole) orally for 5 days • 2 cc Dexamethasone injectable 2 mg/mL IM for 3 days, followed by 1 cc for 2 days[1]
66 lb (30 kg)	• 1 ½ cc of Product A or Product B SQ for 5 days • 8 cc Safeguard® (10% Fenbendazole) orally for 5 days • 3 cc Dexamethasone injectable 2 mg/mL IM for 3 days, followed by 1 ½ cc for 2 days[1]
88 lb (40 kg)	• 2 cc of Product A or Product B SQ for 5 days • 10 ⅔ cc Safeguard® (10% Fenbendazole) orally for 5 days • 4 cc Dexamethasone injectable 2 mg/mL IM for 3 days, followed by 2 cc for 2 days[1]
110 lb (50 kg)	• 2 ½ cc of Product A or Product B SQ for 5 days • 13 ⅓ cc Safeguard® (10% Fenbendazole) orally for 5 days • 5 cc Dexamethasone injectable 2 mg/mL IM for 3 days, followed by 2 ½ cc for 2 days[1]
132 lb (60 kg)	• 3 cc of Product A or Product B SQ for 5 days • 16 cc Safeguard® (10% Fenbendazole) orally for 5 days • 6 cc Dexamethasone injectable 2 mg/mL IM for 3 days, followed by 3 cc for 2 days[1]
154 lb (70 kg)	• 3 ½ cc of Product A or Product B SQ for 5 days • 18 ⅔ cc Safeguard® (10% Fenbendazole) orally for 5 days • 7 cc Dexamethasone injectable 2 mg/mL IM for 3 days, followed by 3 ½ cc for 2 days[1]
176 lb (80 kg)	• 4 cc of Product A or Product B SQ for 5 days • 21 ⅓ cc Safeguard® (10% Fenbendazole) orally for 5 days • 8 cc Dexamethasone injectable 2 mg/mL IM for 3 days, followed by 4 cc for 2 days[1]
198 lb (90 kg)	• 4 ½ cc of Product A or Product B SQ for 5 days • 24 cc Safeguard® (10% Fenbendazole) orally for 5 days • 9 cc Dexamethasone injectable 2 mg/mL IM for 3 days, followed by 4 ½ cc for 2 days[1]
220 lb (100 kg)	• 5 cc of Product A or Product B SQ for 5 days • 26 ⅔ cc Safeguard® (10% Fenbendazole) orally for 5 days • 10 cc Dexamethasone injectable 2 mg/mL IM for 3 days, followed by 5 cc for 2 days[1]
[1]Ewes and does in last month of gestation should receive flunixin meglumine (Banamine®, prescription only) 50 mg/mL at the rate of 1 cc/100 lb live weight (1.1 mg/kg) orally for 5 days instead of receiving Dexamethasone **to avoid accidently inducing labor**.	