GENUS-LEVEL PCR ANALYSIS OF
A POPULATION OF AVERMECTIN-RESISTANT
TRICHOSTRONGYLES FROM A
SOUTH DAKOTA SHEEP HERD

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ABSTRACT

Though other species of trichostrongyle nematodes are also commonly present in sheep, *Haemonchus contortus* is the most damaging species. To limit losses from trichostrongyles, sheep producers frequently deworm their animals, and the avermectins have become the most popular class of anthelmintics. Because of their common use, avermectin-resistance is a growing problem, particularly in sheep. In 2008, avermectin resistance was first identified in a flock of sheep from South Dakota, based upon results from a fecal reduction test. Most reports of avermectin-resistance result from sheep infected with *Haemonchus* because this genus is more resistant than the others. Therefore, it was expected that *Haemonchus* would be the primary genus present in the resistant flock from South Dakota. Advances in PCR technologies have resulted in protocols for genus-level differentiation of trichostrongyles, and our lab recently developed a method for recovering DNA from trichostrongyle eggs. The purpose of this project was to use these molecular techniques to determine the primary genera present in this drug-resistant flock. During the fall of 2008, fecal samples were collected from 51 lambs, and fecal eggs were harvested with a sugar flotation technique. DNA was isolated from 14 samples having more than 50 eggs/3g. Multiplex real-time PCR analysis was performed on these samples using genus-level PCR probes and primers for *Haemonchus*, *Ostertagia* and *Trichostrongylus*. *Haemonchus* was the only DNA detected in 11 of the 14 samples with 3 samples testing negative for all 3 genera. Negative results in the 3 samples suggest either problems with detecting *Ostertagia* or *Trichostrongylus* in these samples, or the presence of a less common genus in these sheep.