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**PARASITES OF SHEEP AND THE PLASMA PEPSINOGEN
TEST FOR HYPOBIOTIC LARVAE**

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Abstract

Parasite studies were performed on two different flocks of sheep representing different management practices. In a drylot flock of 60 lambs, analysis of fecal samples for worm eggs indicated virtual absence of worms, which was confirmed by necropsy of five lambs. In sharp contrast, studies on a pasture flock of 48 lambs revealed heavy infestations with nematodes and cestodes. Half of this flock were treated with Ivomec, and half were untreated controls. Weight records at monthly intervals showed a significant difference in rate of gain by treated lambs over the controls. Necropsy of 15 lambs confirmed that the twisted stomach worm, Haemonchus contortus, was the primary parasite. This trichostrongylid nematode is particularly injurious because, when the infective third stage larvae (L_3) are ingested with herbage, they burrow into abomasal glands and become fourth stage (L_4) larvae, causing impairment in gland function. Furthermore, during the winter the L_4 larvae become dormant or hypobiotic in the glands and then emerge during the spring to produce new infections with adult worms.

From the flock of 48 sheep, two treated and two control ewes were selected for the plasma pepsinogen test to determine the presence of hypobiotic larvae during the winter. The critical portion of this test is the measurement of tyrosine in the blood. At least 1500 milliunits of tyrosine are indicative of hypobiotic L_4 larvae. We observed levels as high as 1900 milliunits in control ewes. The ewes had very low Haemonchus egg counts during the winter, which was to be expected, since larvae do not produce eggs. But by May 1, large numbers of trichostrongylid eggs appeared in fecal samples, illustrating the phenomenon of "spring rise," when overwintering larvae emerge from abomasal glands and develop into egg-laying adults. This allows reseeding of the pasture with nematode eggs. Thus, we demonstrated that the plasma pepsinogen test can be used as an indicator of hibernating L_4 larvae which are a potential source for parasitizing the entire flock of sheep in the spring.

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