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## EFFECTIVENESS OF TIAMULIN IN DRINKING WATER FOR TREATMENT AND CONTROL OF PORCINE PROLIFERATIVE ENTEROPATHY (ILEITIS) DUE TO *LAWSONIA INTRACELLULARIS* INFECTION

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The objective of this study was to evaluate the effectiveness of 60 ppm tiamulin hydrogen fumarate (thf) for 5 consecutive days in drinking water of swine for treatment and control of porcine proliferative enteropathy (PPE) due to *Lawsonia intracellularis* (LI) infection in a pure culture challenge model in susceptible pigs. Forty-eight healthy 6-week-old pigs of mixed breed and sex were assigned to 16 pens (3 pigs/pen) comprising 8 blocks of two treatment groups balanced for body weight and gender. Treatments were assigned to pens within blocks randomly. The CONTROL group was infected and nonmedicated. The TREATED group of pigs was infected followed by medication with thf at 60 ppm for 5 consecutive days after symptoms of PPE became evident. On day 0 both treatment groups were inoculated intragastrically via stomach tube with a pure culture of LI. Water medication was provided to the TREATED group when  $\geq 50\%$  of pens had pigs with clinical symptoms of PPE. Medication was provided from days 8-13 followed by a 10-day post-medication observation period. Clinical signs (diarrhea, body condition), fecal shedding of LI, and productivity were monitored periodically throughout the study. Both treatment

groups were necropsied 23 days post-infection (10 days after cessation of medication). PPE-specific gross and microscopic lesions were quantified and intestinal tissues were cultured at necropsy. Blinding measures were utilized. The only lesions observed in any pigs by gross and microscopic examination were those of PPE. All pigs were free of *Brachyspira*(*Serpulina*) spp, *Salmonella* spp, and *E. coli* by culture, verifying the presence of an uncomplicated LI infection. The prevalence and severity of gross and microscopic PPE-specific lesions were significantly reduced in the TREATED group. Fecal shedding of LI was significantly reduced in the TREATED group. Clinical signs were significantly reduced in the TREATED group by the third day of medication and remained significantly reduced throughout the study. The rate and efficiency of weight gain of the TREATED group was significantly greater for the combined treatment and post-treatment periods. This study demonstrates the ability of tiamulin in drinking water to treat and control the clinical, pathological, and negative productivity effects of PPE in pigs experiencing an outbreak.

Table 1. Effects of tiamulin against PPE 10 days after cessation of treatment

	CONTROL	TREATED	P value
% pigs with PPE gross lesions	58 %	12 %	0.0002
% pigs with PPE microscopic lesions	92 %	21 %	< 0.00005
% pigs with fecal LI shedding, D23	71 %	12 %	< 0.00005
Average daily weight gain (g), D8-23	510	641	0.007
Gain/Feed, D8-23	0.528	0.633	0.010

Figure 1. Mean daily clinical symptom scores by treatment group

