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Effect of Tylan Premix Administration on Transmission of, and Seroconversion to, a Spontaneous *Lawsonia intracellularis* Infection in Growing Pigs

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Introduction Tylan premix fed at 100 g/ton of feed for 21 days is an effective program for prevention and control of porcine proliferative enteropathy (PPE) caused by *Lawsonia intracellularis* (LI). Tylan premix also can be fed to growing swine at 40 g/ton, and to finishing swine at 20 g/ton for increased rate of weight gain and improved feed efficiency. *Lawsonia intracellularis* is shed in the feces of infected pigs and exposure to this disease organism can be detected by an immunofluorescent antibody (IFA) serologic test within 14 days (1). Studies evaluating the influence of antibiotic administration on transmission of, and seroconversion to, LI have not been reported. The objective of this study was to evaluate the effect of Tylan premix administration on transmission of, and seroconversion to, a spontaneous LI infection in growing pigs.

Materials and Methods Ninety barrows weighing approximately 40 pounds each were selected from a source farm infected with LI and with a history of PPE. Pigs were individually weighed, identified and randomly allocated by weight to one of 3 treatment groups: 1) Tylan 100 g/ton for 3 weeks, followed by Tylan 40 g/ton for 6 weeks, followed by Tylan 20 g/ton for 7 weeks (100/40/20); 2) Tylan premix 100 g/ton for 3 weeks followed by no antibiotic for 13 weeks (100/0/0); or, 3) no antibiotic for 16 weeks (0/0/0). Each treatment group contained 5 pens of 6 pigs per pen. Pens were separated by solid pen dividers, but were contained within the same air space. Diet changes were made on the same day for all treatments. All pigs were individually weighed on the day the diet changes were made. Pen feed consumption was monitored. The study was terminated at the end

of 16 weeks when all pigs were weighed off trial. Pigs were observed daily for signs of PPE. Fecal samples were collected from one pig per pen per week throughout the study for PCR analysis for LI. Serum samples were collected from all pigs at the beginning and end of the trial for analysis for antibodies to LI by IFA test.

Results and discussion Clinical signs of PPE were not observed during the study. No LI positive fecal samples were detected from any treatment group during the study. Table 1 shows the LI serologic results by treatment at the beginning and end of the study.

Table 1. LI serologic results

Treatment	Initial LI IFA		Final LI IFA	
	+	-	+	-
100/40/20*	0	30 (100%)	2 (8%)	24 (92%)
100/0/0	0	30 (100%)	16 (59%)	11 (41%)
0/0/0	0	28 (100%)	18 (67%)	9 (33%)

*Indicates significantly reduced seroconversion (p = .001)

Seroconversion to LI was significantly reduced in pigs in the Tylan 100/40/20 treatment group. This may be because of reduced transmission of LI within these pens, or because of reduced susceptibility of these pigs to LI. Exposure of pigs to LI in this study may have been sufficient to cause seroconversion in some cases, but not sufficient to produce clinical disease or LI shedding. In the 100/0/0 and 0/0/0 treatment groups, all 5 pens had pigs that seroconverted to LI; the 100/40/20 treatment groups had only 2 of 5 pens of pigs that seroconverted to LI.

Performance differences were not significant across treatments due to the small number of replicates per treatment. Performance of pigs in this study was characteristic of high health pigs reared in experimental conditions.

Reference 1.Knittel JP et al. 1998. Evaluation of antemortem polymerase chain reaction and serologic methods for detection of *Lawsonia intracellularis*-exposed pigs. AJVR vol. 59, no. 6, 722-726.