

## 265 Evaluating the route of antibiotic administration and its effect on nursery pig growth performance.

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A total of 2,592 pigs (L337×1050, PIC, Hendersonville, TN; initially 5.58 kg BW) were used in a 28-d study to evaluate the route of antibiotic administration (in-feed vs in-water) on pig performance. Pigs were weaned at 21 d of age and placed in a commercial research facility with 27 pigs per pen. After a 7-d pre-trial period, pens of pigs were assigned to weight blocks in a randomized complete block design. There were 12 replications per treatment with pen as experimental unit for in-feed medication treatments and a pairs of pens as the experimental unit for water medication treatments. Treatments included a control (no medication), chlor-tetracycline (CTC) provided via feed or water to achieve 22 mg/kg BW, tiamulin in feed (5 to 10 mg/kg BW) or water (23 mg/kg BW), or a combination of CTC and tiamulin in feed. Experimental treatments were provided for 14-d followed by a 14-d period without medication. Data were analyzed using R Studio (Version 3.5.2). From d 0 to 14, there was an antibiotic×route of administration interaction for ADG and G:F. For ADG, pigs fed diets containing CTC had increased ( $P < 0.05$ ) ADG compared with those fed tiamulin in feed, with pigs provided CTC or tiamulin in the water intermediate. For G:F, pigs provided tiamulin in feed had decreased G:F compared to pigs fed CTC in feed or CTC or tiamulin supplied in water. Pigs fed CTC in the diet had increased ADFI compared to the control with pigs provided antibiotics in the water or tiamulin in feed intermediate ( $P < 0.05$ ). Pigs provided the combination of CTC and tiamulin in feed were not different than those provided CTC in feed. There was no evidence of difference among treatments in subsequent

performance. In summary, providing CTC in feed with or without tiamulin improved nursery pig growth performance.

**Table 1.** Effects of antibiotic administration on nursery pig growth performance from day 0 to 14

Item	Control	In-feed CTC	In-water CTC	In-feed tiamulin	In-water tiamulin	CTC and tiamulin (In-feed)	SEM
ADG, g <sup>1</sup>	439 <sup>b</sup>	480 <sup>a</sup>	457 <sup>ab</sup>	445 <sup>b</sup>	460 <sup>ab</sup>	474 <sup>a</sup>	8.7
ADFI, g <sup>2</sup>	596 <sup>b</sup>	648 <sup>a</sup>	617 <sup>ab</sup>	625 <sup>ab</sup>	616 <sup>ab</sup>	637 <sup>a</sup>	12.1
G:F, g/kg <sup>1,2</sup>	737 <sup>ab</sup>	741 <sup>a</sup>	741 <sup>a</sup>	713 <sup>b</sup>	747 <sup>a</sup>	745 <sup>a</sup>	9.1

<sup>1</sup> Interaction antibiotic type × route of administration, ( $P < 0.05$ ); Main effect of antibiotic type, ( $P < 0.05$ )

<sup>2</sup> Main effect of route of antibiotic administration, ( $P < 0.05$ )

<sup>ab</sup> Means within row with different superscripts differ ( $P < 0.05$ )

**Keywords:** antibiotics, growth performance, nursery pigs