

**Effects of dietary nucleotides on performance, serum IgG concentration, intestinal morphology, and intestinal tissue DNA, RNA, and protein content of newly weaned pigs**

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**ABSTRACT:** An experiment was conducted to determine the effects of adding nucleotides to starter diets for weanling pigs. Twenty pigs were weaned at  $19.4 \pm 1$  d of age and randomly allotted to two treatment groups in a completely randomized design. Pigs allotted to Treatment 1 were fed a conventional starter diet. Pigs allotted to Treatment 2 were fed this diet supplemented with nucleotides in amounts that correspond to 100% of the quantities found in sow milk (DM-basis) on d-14 of lactation. Five pigs from each treatment group were sacrificed on d-14 and the remaining pigs were sacrificed on d-28 post-weaning. Pig performance, serum IgG concentration, intestinal morphology, and intestinal tissue DNA, RNA, and protein content were measured to determine the effects of nucleotide supplementation. No differences between treatment groups were observed for ADG, ADFI, G:F, serum IgG or intestinal tissue DNA, RNA, and protein content. Likewise, no differences between treatment groups were observed for weight, length, and weight:length of the small intestine on d-14. On d-28, pigs fed the nucleotide-supplemented diet tended to have a longer ( $P = 0.06$ ) small intestine compared to the intestine of pigs fed the control diet (12.3 vs. 10.9 m), but no differences in weight or weight:length were observed. On d-14, duodenal villus height (VH) was lower ( $P = 0.03$ ) in pigs fed the nucleotide-supplemented diet vs. pigs fed the control diet (353 vs. 426  $\mu\text{m}$ ), but ileal VH and villus height:lamina propria depth (VH:LPD) was higher ( $P =$

0.01) in pigs fed the nucleotide-supplemented diet vs. pigs fed the control diet (321 vs. 239  $\mu\text{m}$  and 1.56 vs. 1.23  $\mu\text{m}$ , respectively). On d-28, duodenal lamina propria depth (LPD) was greater ( $P = 0.02$ ) and ileal VH:LPD was higher ( $P = 0.04$ ) in pigs fed the nucleotide-supplemented diet vs. pigs fed the control diet (398 vs. 326  $\mu\text{m}$  and 1.78 vs. 1.38  $\mu\text{m}$ , respectively). Using data pooled from both treatment groups, intestinal VH and LPD progressively decreased ( $P < 0.01$ ) from the duodenum to the jejunum, and from the jejunum to the ileum on d-14 and on d-28 post-weaning . In contrast, the VH:LPD did not differ from the duodenum to the jejunum or from the jejunum to the ileum. Data from this experiment indicate that nucleotide supplementation during the immediate post-weaning period may have a positive influence on gastrointestinal morphology.