

## Effects of dietary nucleotides on intestinal microbial activity in newly weaned pigs

C. D. Mateo, D. N. Peters, R. I. Dave, A. Rosa, C. Pedersen, and H. H. Stein

*South Dakota State University, Brookings SD 57006*

**ABSTRACT:** Two experiments were conducted to determine the effects of adding nucleotides to starter diets for weanling pigs. In Exp. 1, 20 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. Intestinal microflora composition was measured in the ileum, the cecum, and the distal colon contents. However, no differences in microbial concentrations were observed between pigs fed the control diet and pigs fed the nucleotide supplemented diet. Exp. 2 was an in-vitro experiment that was conducted to determine bacterial growth in a broth without (control) or with nucleotide supplementation over a 16-h period. No differences between treatment groups were observed for *Bifidobacterium* spp. and *L. acidophilus* counts. The broth supplemented with nucleotides increased ( $P = 0.03$ ) total coliform count compared to the broth without nucleotide supplementation after 8 h (10.22 vs. 10.12  $\log_{10}$  cfu/g). The broth supplemented with nucleotides tended to increase ( $P = 0.05$ ) the *E. coli* count compared to the broth without nucleotide supplementation (9.86 vs. 9.62  $\log_{10}$  cfu/g) after 4 hours of incubation. After 16 hours of incubation, the broth supplemented with nucleotides had a lower ( $P < 0.01$ ) *Cl. perfringens* count compared to the broth not supplemented with

nucleotides (6.78 vs. 7.15  $\log_{10}$  cfu/g). These observations indicate that nucleotides may serve as an energy source for microbes.