

**Title:** Evaluation of a Chlorate Treatment on Post-Weaning Diarrhea Caused by *E. Coli* in Weaned Pigs - **NPB #02-061**

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**Abstract:** A series of five experiments was conducted examining the effect of chlorate administration on post-weaning diarrhea caused by *E. coli* in weaned pigs. In the first two experiments, pigs were experimentally challenged with two strains of *E. coli* (containing the F18 and K88 fimbrial types) known to produce diarrhea in weaned pigs. Three chlorate levels were examined (0, 5, and 15 mM) and although no differences ( $P > 0.10$ ) were observed in cecal or rectal populations of the challenge strains of *E. coli*, a slight reduction ( $P < 0.05$ ) in the severity of scours was observed in the second experiment. We isolated a wild-type strain of *E. coli* that was later identified as having the F18 fimbriae. For the final three experiments, we purchased weaned pigs and allowed them to break naturally with post-weaning diarrhea at our laboratory. We examined the effect of chlorate (15, 100 and 200 mM) administered in successive doses via oral gavage at different time points in the post-weaning disease progression (upon detection of *E. coli* in rectal swabs; upon observing scours in any pig; and upon observing scours in 75% of the pigs). No effect ( $P > 0.10$ ) was observed in populations of *E. coli* from the ileum, cecum, colon or rectum in any of the experiments. Nor were any differences ( $P > 0.10$ ) noted in the severity or incidence of scours. Examination of the laboratory and wild-type strains in pure culture *in vitro* demonstrated that all of these strains were sensitive to chlorate. Chlorate has been shown to effectively reduce populations of *E. coli* in weaned pigs by other researchers. The reasons we did not see any benefit in these experiments may be related to dosing protocol, concentrations of chlorate examined or other unknown factors. Increasing the dosing frequency and/or the chlorate dose may still prove beneficial in alleviating the effects of post-weaning diarrhea caused by *E. coli*.

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