

Title: Effects of a commercial probiotic supplement on intestinal *E. coli* and growth in the weaned pig - **NPB #02-208**

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Abstract: Methods to optimize swine growth without the use of subtherapeutic antibiotics are currently desired. The use of a commercially available probiotic feed supplement was tested and compared to subtherapeutic antibiotic feeding for its effect on fecal *E. coli* concentrations, protection from *Salmonella* and rotavirus infections, and piglet growth under experimental and field conditions. Under experimental conditions, probiotic-fed piglets had higher total intestinal volatile fatty acid (VFA) concentrations than antibiotic-fed pigs, but similar to VFA concentration to control-fed pigs. Paradoxically, the total fecal *E. coli* concentration was significantly lower in the antibiotic-fed group compared to the two other groups. The prevalence of *Salmonella* and rotavirus following experimental challenge was similar in all groups. In the field study, fecal *E. coli* concentrations, prevalence of *Salmonella*, and growth production parameters among pigs fed probiotics, antibiotics, or control diets were all similar. Pigs fed antibiotics outperformed probiotic fed pigs, but the performance of the antibiotic fed pigs was not significantly different than the pigs on the control diet. Although the feeding of some probiotic bacteria to livestock are effective at achieving the desired outcomes, the results of this study suggest that the effectiveness of direct feed microbials is strain and possibly farm specific and highlights the need to individually validate probiotic formulations. Additional details concerning the mechanisms that probiotics and subtherapeutically fed antibiotics modulate the ecological balance of bacterial flora in the gastrointestinal tract are required in order to understand how the beneficial effects associated with certain feed additives are mediated.

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