

## PORK SAFETY

**Title:** Alternative Strategies for Utilizing Antimicrobials as Growth Promotants

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**Date Received:** June 25, 2003

**Abstract:** Recently there has been concern that antimicrobial resistant bacteria developed in livestock fed subtherapeutic levels of antimicrobials could ultimately pose a threat to human health. Consequently, there has been increasing pressure to eliminate the use of antimicrobials as growth promotants in meat-producing animals. The Center for Disease Control and Prevention has stated that the use of antimicrobials as growth promotants, at low levels and for extended periods of time, is not prudent and judicious. As such, the future use of antimicrobials as growth promotants is uncertain. Consequently, there has been a push to identify viable alternatives to antimicrobial supplementation that would maintain the benefits of improved growth and health of the animal without facilitating the development of resistant bacteria. The goal of this research project was to determine whether feeding therapeutic levels of an antimicrobial for a short period of time stimulates the growth of swine to the same or greater extent, than feeding subtherapeutic levels of an antimicrobial for an extended period of time. In order to accomplish this goal we assessed the growth and health status of 1) pigs fed a control diet, 2) pigs fed a control diet supplemented with subtherapeutic levels of antimicrobials and 3) pigs fed a control diet and injections of therapeutic levels of antimicrobials at specific times.

The study was conducted; growth performance data and blood samples were collected. However, the pigs receiving antimicrobials did not grow faster and more efficiently than did the pigs fed the control diet. There was no difference in blood borne growth factors or acute phase proteins across treatments. Consequently the results from this study suggest that therapeutic doses of antimicrobials do not enhance growth of swine. However, since feeding the subtherapeutic levels of antimicrobials did not enhance growth either, the results are not unequivocal. It has been estimated that subtherapeutic levels of antimicrobials do not enhance the growth of swine in approximately 30% of the studies conducted. This study falls into that category. Therefore, within the context of this study it is not possible to draw definitive conclusions as to whether strategically timed administration of therapeutic levels of antimicrobials could be a viable alternative to subtherapeutic antimicrobials.

*These research results were submitted in fulfillment of checkoff funded research projects. This report is published directly as submitted by the project's principal investigator. This report has not been peer reviewed*

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