RESEARCH ABSTRACT

PORK SAFETY

Title: Effect of oligosaccharides and organic salts on the health and performance of growing-finishing pigs – **NPB #99-219**

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Abstract

Two experiments were conducted to determine the influence of two prebiotics (fructooligosaccharide and arabinogalactan) and two probiotics (*Bifidobacterium breve* and a bacillus) on pig performance and on intestinal microbial populations. In Exp. 1 pigs were given the experimental treatments orally for 4 d prior to weaning (23d) and throughout in the feed from weaning to market weight. Treatments were CON = control with no antibiotic, AB = antibiotic, FOS = fructooligosaccharide, AG = arabinogalactan, AG+B = arabinogalactan + *B. breve*. Pigs in Exp. 2 were given treatments in the feed for 4 d prior to weaning (17d) till two weeks after entering the grow/finish building. Treatments were CON, AB, FOS, AG and PRO where PRO = bacillus. In Exp. 1, liveweight gains were increased by 9.5% and feed efficiency improved by 4.5% with AB compared to CON with liveweight gains and feed efficiency not changed by the other treatments. There was a tendency of reduced intakes with the AG and FOS containing diets. In Exp. 2, liveweight gains were increased by 14.6%, 6.6% and 10.4% for AB, FOS and PRO, respectively, compared to the CON. Feed efficiency was increased (4.6%) the most with the PRO diet compared to CON. Feed consumption was increased 11.6% with AB, 4.3% with FOS and 5.4% with PRO compared to CON. There were no effects of treatment on total anaerobes and bifidobacteria in either experiment. Salmonella were not detected in either experiment. Coliform numbers were lower ($P < .05$) for AG and higher for AG+B at weaning in Exp. 1, but no differences were detected in the nursery and grow phase of Exp. 1. FOS fed to nursery pigs reduced ($P < .01$) clostridia in the intestinal system. Coliforms were not changed by treatment in Exp. 2. When pigs are growing close to their maximum potential, it is difficult to demonstrate effects of growth promotant antibiotics, or their alternatives, on animal performance. The general lack of a significant influence of the growth promoting antibiotics on performance suggests that animals were in good health and not stressed. Under these conditions the treatments containing the probiotic tended to give performance values between CON and AB. A standardized stress model would be useful for determining efficacy of these and other compounds that may potentially be used to replace subtherapeutic use of antibiotics.