



Aviplus treatment improves growth efficiency in broilers and swine but does not affect intestinal populations of experimentally inoculated with Salmonella

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Organic acids improve growth efficiency in food animals, and can impact the microbial ecology of the gastrointestinal tract. Thus it has been suggested that they could be used to reduce foodborne pathogenic bacterial populations before animals enter the food chain. This study was undertaken to determine the effect of a commercial microencapsulated organic acid product on populations of experimentally inoculated Salmonella populations in swine and broilers. Broiler chicks (n = 192 in 2 replications; 1 d of age) were artificially inoculated with 10⁶ CFU *S. Typhimurium* and randomly assigned to 0g, 0.2 kg, 2 kg, or 10 kg AviPlus®/1000 kg feed diets. Feed consumption and weights were measured daily for 7 d. Salmonella populations were analyzed upon sacrifice but no differences in cecal Salmonella populations were found. AviPlus® treatment at 0.2 kg/1000 kg feed increased (P < 0.05) pen weight, average body weight and average daily gain across the study. AviPlus® inclusion at 0.2, 2, and 10 kg/1000 kg feed reduced (P < 0.05) feed to gain ratios as well. In another study, newly weaned pigs (7 d of age; n = 24) were blocked by sex and were randomly assigned to either 0g, 3 kg, or 30 kg AviPlus®/1000 kg feed diets and fed for 14 d and were weighed and feed intake was measured daily. Pigs were artificially inoculated with 10⁷ CFU *S. Typhimurium* and fecal samples were collected daily for 5 d until sacrifice. Intestinal contents from the rectum, cecum and ileum were collected, as well as ileocecal lymph nodes. No differences in Salmonella populations were found in any compartment, though rectal populations were reduced in swine fed 30 kg AviPlus®/1000 kg feed. Feed efficiency (feed to gain) in pigs were increased (P < 0.05) by 3 kg Aviplus/1000 kg feed treatment, and ADG and BW was increased by 30 kg AviPlus®/1000 kg feed treatment. Collectively, our results indicate that while AviPlus® does not affect artificially inoculated Salmonella populations in vivo in these short-term studies, AviPlus® treatment increased the feed efficiency of broiler chicks and newly weaned swine.

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