

Effect of copper hydroxychloride and heat stress on growth performance, diarrhea incidence, and blood characteristics of weanling pigsC Espinosa¹, S Fry², M Kocher² and H Stein¹¹University of Illinois Urbana-Champaign; ²Micronutrients, Inc.

An experiment was conducted to test the hypothesis that Cu hydroxychloride (Intellibond C, Micronutrients, LLC, Indianapolis, IN) improves growth performance and blood characteristics, and reduces diarrhea in weanling pigs without

or with exposure to heat stress. One hundred sixty pigs (6.14 ± 0.90 kg) were allotted to a 2×2 factorial design with two levels of choice white grease (CWG; 0 or 5%) and two levels of Cu from Cu hydroxychloride (0 or 100 mg/kg) with eight pens per diet. Diarrhea scores were assessed using a score from one to five (one = normal feces to five = watery diarrhea). From d 40 to 44, ambient temperature was increased from 24°C to 32°C to simulate heat stress. On d 14, d 28, d 40, and on d 44, blood samples were collected from 1 pig per pen and tumor necrosis factor- α (TNF- α), peptide YY, and blood proteins were analyzed. Results indicated no interactions between CWG and Cu hydroxychloride for overall growth performance. Average daily gain was greater ($P \leq 0.05$) from d 14 to 28 and also during exposure to heat stress, and fecal scores were reduced over the entire period ($P \leq 0.05$) for pigs fed Cu hydroxychloride diets compared with pigs fed diets without Cu hydroxychloride. There was also an increase ($P \leq 0.05$) in concentration of peptide YY and a reduction ($P \leq 0.05$) in TNF- α concentration on d 14 for pigs fed Cu hydroxychloride diets compared with pigs fed diets without Cu hydroxychloride. This may be attributed to the effect of Cu in enhancing the expression of hypothalamic appetite regulators and its bacteriostatic property in reducing inflammation caused by pathogens. In conclusion, supplementation of Cu hydroxychloride to diets fed to weanling pigs without or with addition of CWG reduces diarrhea incidence and improves growth performance and some blood characteristics.