Effect of Zn sources and inclusion rate on growth performance and carcass composition in grower-finisher pigs

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Pigs (n = 132 PIC 29 x 380) were blocked by initial BW (average: 22.25 ± 1.47 kg), and allotted to pens within six blocks. Pens were then randomly assigned to a 2 × 2 factorial treatment regimen with 2 sources of Zn [Zn hydroxychloride (IBZ) or ZnSO₄] and 2 inclusion rates (60 and 120 ppm) for a 5 phase grower-finisher study. A Zn-free minerals premix with an additional 166 ppm of tribasic copper chloride (Intellibond C; Micronutrients, Inc.) was incorporated into all diets. In addition, diets in phase 5 contained 10 ppm Paylean. All nutrients met or exceeded 2012 NRC recommendations. Pigs were scanned for BF and LM at the end of phase 4 and at study completion. HCW and Fat-O-Meater data were obtained at harvest. No significant Zn source by levels interaction was observed for growth. IBZ-fed-pigs grew faster in phase 1 (P < 0.01, 0.96 vs. 0.90 kg/d) and the combined phase 1 and 2 period (P < 0.05, 0.87 vs. 0.84 kg/d), had better G:F (P < 0.02, 0.40 vs. 0.38) during phase 2, and were heavier (P < 0.02, 67.6 vs. 65.7 kg BW) at the end of phase 2 than those fed ZnSO₄. Intake, however, was similar between Zn sources in phases 1 to 4 (P > 0.17) although feeding higher Zn levels tended to reduce intake in phase 4 (P > 0.09, 3.06 vs. 2.86 kg/d). In phase 5, pigs fed ZnSO₄ had higher intake than those fed IBZ (P < 0.05; 3.08 vs. 3.32 kg/d), but ADG and G:F were similar (P > 0.22). In addition, increasing IBZ from 60 to 120 ppm during phase 5 decreased 10th rib BF (15.8 vs. 14.7 mm), and resulted in a 18.5 % increase in lean gain (8.1 vs. 9.6 kg), whereas increasing ZnSO₄ resulted in a higher 10th rib BF (13.3 vs. 16.4 mm) and lower lean gain (10.2 vs. 9.2 kg; Interaction, P < 0.05). For the overall study; although no significant growth performance differences were observed, a numerically lower ADFI (P = 0.19, 2.48 vs. 2.57 kg/d) and higher G:F (P = 0.16, 0.35 vs. 0.34) in IBZ-fed-pigs reduce feed cost by $ 2.94 per pig. The results of the current study suggest that pigs fed IBZ had improved ADG, G:F and BW in early grower-finisher phases and had similar growth while consuming less feed in the final Paylean-fed phase.
Keywords: IBZ, ZnSO₄, inclusion rate, grower-finisher pigs.