

P315, Comparison of two sources of microbial phytases on performance and bone ash of broiler chicks fed non-phytate phosphorus deficient corn-soybean meal based diets

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A 17d experiment was conducted to evaluate the source and dose effects of supplementation of a next generation microbial phytase (CIBENZA® PHYTAVERSE®; phytase-A) and a commercial 6-phytase (phytase-B) in broiler chicks fed non-phytate phosphorus (npp) deficient corn-SBM based diets. A total of 560 Ross-308 male broiler chicks were assigned to 10 treatments with 7 cages/treatment and 8 chicks/cage. Treatments consisted of T1 with 0.21% npp (Negative Control, NC); T2 to T5 with 250, 500, 750, and 1500u of phytase-A/kg diet added to T1, respectively; T6 to T9 with 250, 500, 750, and 1500u of phytase-B/kg diet added to T1, respectively; T10 with 0.45%npp (Positive Control, PC). Diets were formulated to have 0.93% Ca. All the diets were pelleted at 800 C and crumbled. The study was carried out as RCBD and the data were analyzed using 1-way ANOVA and 2-way ANOVA (factorial for 2 phytase sources and 4 doses). Significance was tested at $P \leq 0.05$. Orthogonal polynomial contrasts were used to test the linear and quadratic effects of phytases' doses. Overall, significant treatment effects were observed for gain, FCR adjusted for mortality/culls (FCR), feed intake (FI), and g of ash/bone. Significant differences ($P < 0.05$) between NC and PC were observed for both performance and bone ash. Significant ($P < 0.05$) quadratic effects were observed for both phytases for performance and ash. Factorial analysis indicated only significant interaction ($P < 0.05$) for FCR adjusted for mortality/culls (FCR) suggesting no differences between phytase-A and B at 250 and 500u. At 750 and 1500u, phytase-A improved FCR by 2.2 and 2.4 points, respectively, over phytase-B. Significant source and dose effects ($P < 0.05$) were observed for gain, and g of ash/bone suggesting phytase-A improved gain by 2.3% and g of ash/bone by 8% over phytase-B. Dose effect for gain indicates no response after 500u irrespective of source, and for g of ash/bone a significant increase at each tested dose was observed irrespective of source. There was a trend ($P = 0.057$) for source effect on FI. In summary, main effects outcome indicated that the phytase-A significantly improved gain and g of ash/bone over phytase B irrespective of dose.

Key Words: Phytase, Broiler