

## **T161 Dose-response comparison of two phytase products on broiler performance, bone parameters and nutrient digestibility**

**Roger Davin\*<sup>1,2</sup>, Megharaja Manangi<sup>2</sup>, Fenglan Yan<sup>2</sup>, Mercedes Vázquez-Añón<sup>2</sup>** **1 University of Missouri; 2 Novus International Inc**

A battery trial was conducted to evaluate the dose-response of two phytase products (Phytase A: CIBENZA® PHYTAVERSE®, Novus International Inc. and Phytase B: modified E. coli phytase) on growth performance, bone ash and mineral digestibility in broilers fed corn soy based diets with 4% rice bran. Diets were offered in crumbled form. The study consisted of 10 dietary treatments including a positive control (PC) with 0.45% NPP and 0.93% Ca, and a negative control (NC) with 0.30% NPP and 0.78% Ca. Phytase products were added to NC at 0, 250, 500, 1000 and 2000 U/kg. Each treatment had 7 replicate pens of 8 male broilers. Body weight, feed intake, FCR and mortality were determined at 17 d. On d 18 right tibias from 6 birds/cage and ileum content from all birds/cage were collected. Tibias were analyzed for ash concentration, and ileum content was used for mineral digestibility calculations. Data were analyzed with one-way ANOVA and orthogonal polynomial contrasts were used to test the linear and quadratic effects of phytase, a P-value  $\leq 0.05$  was considered significantly different. Reduction of NPP and Ca decreased Weight gain (0.709 vs. 0.573 kg; 21.2%), bone ash % (52.6 vs. 43.0%) and P digestibility (54.3 vs. 49.9%). Weight gain was clearly improved by phytase supplementation ( $P < 0.0001$ ), both enzymes showed a quadratic response ( $P < 0.0001$ ). Wt gain was similar between both products at all doses, except for 250 U/kg in which Phytase A showed a greater Wt gain compared to Phytase B (0.684 vs. 0.644kg). Bone ash % and amount of ash per bone were improved by phytase supplementation ( $P < 0.0001$ ), and both enzymes responded quadratically ( $P < 0.0001$ ). Interestingly, P digestibility was affected by phytase supplementation ( $P < 0.0001$ ), and responded in a linear manner ( $P < 0.0001$ ). Phytase levels beyond 500 U/kg of both enzymes outperformed PC. In summary, both phytases showed a similar dose response for performance, bone and P digestibility, except for an advantage of 250 U/g of Phytase A vs. Phytase B in Wt gain. P digestibility responded in a different way than performance and bone ash.

**Key Words:** Bone Ash, P digestibility, Performance, Phytase