

ABSTRACT ([Poult. Sci. 92 \(E-Suppl. 1\)](#)):

M24 The effect of a novel, heat-stable xylanase on digesta viscosity and apparent metabolizable energy when fed to broiler chickens.

I.B. Barasch¹SC, J. L. Grimes¹, P. E. Biggs², J. D. Garlich², J. J. Wang² ¹Department of Poultry Science, North Carolina State University, Raleigh, NC ²BioResource International, Inc., Morrisville, NC

Three studies (T1, T2 & T3) were conducted to evaluate the effect of a novel, heat-stable xylanase (Xyl) on digesta viscosity and apparent metabolizable energy (AME) in broiler chicken diets fed from hatch until 20 or 21 d. Diets were wheat (60%)-soybean meal (20%)-DDGS (10%) based and contained either increasing levels of Xyl, an industry standard xylanase (Ind) at the manufacturer's recommended level, or no Xyl. The diets in T1 were fed as a mash and included the Xyl at 0, 40, 80, 160, 320, 640 U Xyl activity/kg of feed. The diets in T2 and T3 included Xyl at 0, 160, 320, 640, 1280 U/kg (T2) and 0, 120, 240, 480, 960, and 1,920 U/kg (T3) and were pelleted at 85 Celsius and then crumbled. Birds were housed in 35 (T1 & T3) or 30 (T2) battery cages with 6 birds/cage and were provided feed and water *ad libitum* throughout the trial. At 20 (T1) or 21 (T2 & T3) d 15 birds/trt were euthanized and ileal digesta was collected for viscosity analysis. Excreta were collected in T1 and T3 at 20 d for AME analysis. Viscosity data were analyzed using Proc GLM of SAS, and AME data were analyzed using Proc Reg of SAS. In all three trials, digesta viscosity was reduced as the level of Xyl increased ($p < 0.05$). Digesta viscosity in birds fed Xyl was equal to birds fed Ind when Xyl was fed at a level equal to or greater than 80 U/kg (T1), 320 U/kg (T2), and 120 U/kg (T3). There was a linear increase in AME with increasing Xyl concentration in both T1 and T3 ($p < 0.005$). In T1, the AME was increased 140 kcal/kg with 640 U/kg Xyl versus the birds fed no Xyl. In T3, supplementation of Xyl at 1,920 U/kg provided a 200 kcal/kg increase in AME over birds fed an unsupplemented diet. The addition of this novel, heat-stable xylanase decreased digesta viscosity and increased AME of broilers when included in both mash and pelleted wheat-based diets.

Key Words: xylanase, enzyme, heat-stable, viscosity, broilers