

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

102 The effect of a novel, heat-stable xylanase on broiler performance when added to wheat-based starter rations.

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Three studies (T1, T2, and T3) were conducted to evaluate the effect of a novel, heat-stable xylanase (Xyl) on the growth performance of broiler chicks from hatch until 3 weeks of age when included in wheat-soybean based rations. T1 and T2 were both designed as 3 × 2 factorials, with 3 energy levels (2800, 2950, and 3100 kcal/kg ME), and 2 levels of Xyl (0 or 800 U Xyl activity/kg of feed). Diets in T1 were fed in mash form and diets in T2 were pelleted at 85°C and then crumbled. T3 was designed as a 5 × 2 factorial with 5 levels of Xyl inclusion (0, 200, 400, 800, 1600 U Xyl activity/kg of feed) and 2 feed forms (mash and crumble); all treatments in T3 were formulated to have 2800 kcal/kg ME. The xylanase was added to the diets in a dry form during feed manufacturing and was pelleted in the trials with pelleted feed. Birds were housed in 36 (T1 and T2) or 60 (T3) battery cages with 6 birds/ cage and consumed feed and water ad libitum throughout the trial. Bird and feed weights were recorded at 3 weeks of age and used to calculate average pen body weights (BW), body weight gain (BWG), feed intake (FI), and feed conversion ratio (FCR). Data were analyzed using JMP 10 and responses were considered significant at $P \leq 0.05$. No significant interactions were detected in these trials, so only main effects are mentioned. In T1 and T2, chicks fed diets containing 800 U Xyl/kg showed an improvement in FCR at 3 weeks of age when compared with the unsupplemented treatments (1.503 vs. 1.585 and 1.567 vs. 1.630, respectively). In T2, BW, BWG, and FI were affected by the energy level, with the lower energy treatments consuming more feed resulting in higher BW and BWG. In T3, BW and BWG linearly increased and FCR was linearly improved with increasing Xyl concentration in the crumbled diets at 3 weeks of age. In conclusion, the addition of this heat-stable xylanase to both mash and pelleted wheat-based diets was able to improve the 3-week growth performance of broiler chicks.

Key Words: xylanase, enzyme, heat-stable, broiler, growth performance