**PERFORMANCE OF BROILER CHICKENS TO OPTIMUM LEVELS OF CARBOHYDRASES AND SUPERDOSE LEVEL OF PHYTASE IN WHEAT-BASED DIETS.**

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The objective of this study was to assess the response of broiler chickens to novel microbial enzymes in wheat/soybean-based diets containing varying levels of phytase, xylanase and β-glucanase. A total of 648 male Ross 308 broiler chickens were randomly assigned to a 3 (none, low (30 mg/kg) and superdose (300 mg/kg) phytase levels) × 2 (none and optimum (100 mg/kg) xylanase levels) × 2 (none and optimum (100 mg/kg) β-glucanase levels) full factorial study in a complete randomized design. The enzyme supplements were supplied by AB Vista, UK. Each of the 12 treatments was replicated 6 times, with 9 birds per replicate. The diets were fed *ad libitum* for 35 days in 3 phases – starter (1-10 d), grower (11-24 d) and finisher (25-35 d). Birds were raised in cages in climate-controlled rooms. Data on feed intake and body weight were collected on days 10, 25 and 35 while feed conversion ratio (FCR) was calculated and corrected for mortality. At day 35 two birds were randomly selected, slaughtered by cervical dislocation and processed for assessment of meat yield. A general linear model procedure was used to analyze the data (Minitab, version 17). There was an interaction (P = 0.05) between phytase and xylanase on feed intake (FI) between 0 and 10 d of age. At d10, birds fed diets with either xylanase or β-glucanase consumed more feed (P < 0.05) than birds on other treatments, including the control. Body weight gain (BWG) was improved to different extents by enzyme supplementation, but there was significant improvement (P < 0.05) due to phytase inclusion during all growth phases. Other interactions (P < 0.05) were seen between phytase and β-glucanase at d35. Phytase addition slightly decreased (P < 0.05) the relative weight of the small intestine at both 10 and 24 d of age. Phytase and xylanase had interaction effect (P < 0.01) on relative weight of breast, while this was further increased (P < 0.01) by inclusion of β-glucanase. It can be concluded that supplementing broiler diets with xylanase, β-glucanase and in particular, phytase, led to an improvement in gross performance.

Keywords: Phytase, β-glucanase, xylanase, wheat, broiler chickens, FCR.