

Effect of xylanase and phytase on energy and phosphorus digestibility in grower pigs fed wheat-based diets containing millrun

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Wheat millrun could become a more valuable feed ingredient if the nutrients bound by arabinoxylans and phytate were made available for use by the pig through enzyme supplementation.

The effects on energy and P digestibility, and growth performance of millrun inclusion level (L1, 20%; L2, 40%) xylanase supplementation (0 or 4,375 U/kg feed), and (or) phytase supplementation (0 or 500 FTU/kg feed) were investigated in a 2 x 2 x 2 factorial arrangement with a wheat-based control diet. Diets were formulated to 3.34 Mcal DE/kg and 2.8 g app. dig. lysine/Mcal DE and included 0.4% chromic oxide. Cannulated grower pigs were fed three diets at 3 x maintenance in subsequent periods for 6 observations per diet. Ileal digesta and fecal samples were each collected for 2 d.

Ileal energy digestibility was affected by millrun inclusion, xylanase and phytase. Total tract DE values were determined to be 3.72, 3.53 and 3.33 Mcal/kg DM respectively, for the control, L1 and L2 diets. Xylanase and phytase supplementation of L1 improved the total tract and ileal DE values to a level similar to the wheat control diet. Millrun addition reduced P digestibility and phytase and xylanase supplementation improved P digestibility.

Overall, millrun inclusion reduced nutrient digestibility and the reduction in nutrient digestibility was partially ameliorated using xylanase and phytase, suggesting that the use of wheat millrun in swine diets can be accomplished more efficiently nutritionally using xylanase and phytase.

Implications: Millrun contains digestible nutrients and should thus be considered a feedstuff for swine. Xylanase and/or phytase will improve the nutritional value of millrun for grower-finisher pigs.