

Evolved *Escherichia coli* phytase in diets of broiler chicks

Adeola, O; Bedford, MR,; Onyango, EM,

Abstract:

An evolved *Escherichia coli*-derived phytase was evaluated for its efficacy in improving growth performance and nutrient utilization of broiler chicks. One hundred forty-four 7-d-old male broiler chicks were grouped by weight into 6 blocks of 6 cages with 4 birds per cage. Six corn-soybean meal-based mash diets were randomly assigned to cages within each block. The 6 diets were adequate P (7.7 g of P/kg of diet), low P (3.9 g of P/kg of diet), low P diet plus 0.75 or 1.5 g of inorganic P from monosodium phosphate, and low P diet plus the evolved *Escherichia coli* phytase at 500 or 1,000 units/kg of diet. The chicks were fed the experimental diets from 8 to 22 d of age. The evolved *Escherichia coli* phytase improved weight gain ($P < 0.05$), feed intake ($P < 0.01$), percentage tibia ash ($P < 0.01$), and retention of P ($P < 0.001$), Ca ($P < 0.01$), N ($P < 0.05$), and a number of amino acids ($P < 0.05$). The evolved *Escherichia coli* phytase was, therefore, efficacious in improving broiler growth performance, bone characteristics, and retention of P, Ca, N, and a number of amino acids.