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Effect of mannan-endo-1,4-beta-mannosidase on the growth performance of turkeys fed diets containing 44 and 48% crude protein soybean meal.

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Abstract

Soybean meal (SBM) contains heat-resistant mannans. Domesticated turkeys are sensitive to mannans because of the high inclusion rate of SBM in their diets, causing increased chyme viscosity, wet droppings, and reduced feed conversion. Three experiments of similar design were conducted to determine the effect of mannan-endo-1,4-f'-mannosidase supplementation of corn-SBM diets on market turkeys. Experiment 1 was conducted at North Carolina State University using Nicholas hens raised from 1 to 98 d of age. Experiments 2 and 3 were conducted at PARC Institute Inc. using Large White turkey toms raised from 1 to 126 d of age. In each experiment, birds were randomly assigned to litter floor pens. Each pen was assigned to one of four experimental treatments in 2 x 2 factorial arrangement of two basal diets containing 44% CP and 48% CP SBM (SBM-44 and SBM-48, respectively) with or without 100 million units (MU) Hemicell/tonne (1 MU = 106 enzyme activity U). Birds fed SBM-44 had lower final BW (14.9 vs. 14.56 kg 18 wk BW / tom; 7.66 vs. 7.46 kg 14 wk BW/hen, $P < 0.05$) and higher final cumulative feed/gain than those fed the SBM-48. Hemicell supplementation generally improved performance of all birds, with a greater response in birds fed SBM-44. Hemicell improved BW and feed/gain by 1% ($P = 0.779$) and 3% ($P = 0.377$) in hens and 2.5% ($P = 0.0016$) and 4% ($P = 0.0001$) in toms, respectively. The results of these experiments indicate that some of the adverse effects of antinutritional factors of SBM of on turkey growth performance can be alleviated by dietary mannan-endo-1,4-beta-mannosidase supplementation.

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