



Effect of Dietary Crude Protein Levels and Phytase Supplementation on Contact Dermatitis Conditions and Litter Parameters of Broiler Chicken

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Abstract

Bad litter management conditions increase the incidence of contact dermatitis cases and the emission of ammonia from the litter. Objective of this study were to determine the effects of two dietary crude protein (CP) levels and phytase supplementation on the incidence of contact dermatitis and litter parameters of broiler chicken. Giving a completely randomize design in 2 x 2 factorial arrangement, 144 broiler chicks in 48 pens received one of the four diets having two dietary CP (20 or 22%) and phytase (0, 750 FTU/kg diet) levels. Paddy husk was the litter material. On 28th and 42nd day birds were inspected and scored for incidence of foot pad dermatitis (FPD), hock burn damage (HBD) and breast blisters (BB). Litter samples taken on day 42 were analyzed for moisture, dry matter, pH, N% and ammonia emission. Dietary phytase and phytase x CP levels interaction had no significant effect on litter quality parameters. High CP diet significantly increased the water intake of birds. Litter N% (3.1%) and moisture contents (59.3%) and ammonia emission rate (7.2mg/kg/h) were significantly higher ($p < 0.05$) when birds were fed 22% than 20% dietary CP (2.4%, 57.1%, 6.5mg/kg/h, respectively). Litter N (ammonia emission = $4.016 + 1.021 \text{ N\%}$) and moisture levels (ammonia emission = $-7.140 + 0.2404 \text{ moisture \%}$) lenierly ($p < 0.001$) increased the ammonia emission rate. Irrespective of phytase supplementation, incidences of FPD, BB and HBD were significantly higher among the birds fed 22% dietary CP. The incidences of FPD, HB and BB on day 42 were significantly higher than on day 28. It is concluded that use of higher dietary CP levels in broiler diets increase the litter ammonia emission rate and the incidence of contact dermatitis cases.

Keywords: *Ammonia Emission, Breast Blisters, Contact Dermatitis, Foot Pad Dermatitis, Hock Burning Damage*

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