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Clove supplements increase feed efficiency in broiler chickens

A joint USA/Spanish study was carried out with the objective of evaluating the effect of different dietary inclusion levels of clove on growth performance, digestibility, intestinal microbiology, and morphology of broiler chickens.

In a first experiment, 800 one-d-old male Ross 308 chicks were randomly allocated to 40 replicate pens with 20 chicks per pen. Five inclusion levels of clove were tested: 0, 100, 200, 1000, and 2500 mg/kg. Treatments were fed from 0 to 35 d of age. Feed to gain ratio was modified with clove inclusion showing a cubic effect ($P < 0.05$). Levels of 100 and 200 mg/kg showed the lower feed to gain ratio.

At 21 and 35 d of age, 2 broiler chickens per pen were selected from diets containing 0 and 100 mg/kg of clove and samples from ileal content and tissue were collected to evaluate microbiology and intestinal morphology. Enterobacteriaceae counts were not affected by clove supplementation at 21 d of age, but the number of *Lactobacillus* was increased compared to the control diet (9.62 vs. 9.18 log cfu/g digesta; $P < 0.05$). Moreover, clove inclusion increased the number of intraepithelial lymphocytes (1.55 vs. 2.22 lymphocytes/100 enterocytes; $P < 0.01$) and lamina propria cell density (5.98 vs. 6.84 cells/1000 μm^2 ; $P < 0.05$) in the intestinal epithelium of 21 d-old broiler chickens.

In a second experiment, 150 d-old male Ross 308 broiler chickens were randomly allocated to 30 cages with 5 broiler chickens per pen. From 19 to 21 d of age, feed intake and total excreta from each cage were recorded and sampled daily and the effect of the same 5 levels of clove on DM and OM digestibility was assessed but, no differences were observed.

Clove at doses of 100–200 mg/kg seem to improve feed efficiency.

Interesting changes in intestinal microbiota and epithelium were observed but further studies are required to clarify the mode of action of clove in broiler chickens.

Editor WorldPoultry

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