

## Use of dietary emulsifier for broiler chickens.

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**Introduction.** Energy is a major cost component in diets for high-performing animals. Due to their high energy density, fats and oils are important energy sources in feed formulation. Improving the energy efficiency of these raw materials is of great interest from an economical point of view. Dietary emulsifier can be used in poultry feed as an important tool to improve fat digestibility, resulting in better energy utilization of diets. The objective of this study was to evaluate the effects of an emulsifier-additive on performance and carcass parameters in broilers chickens.

**Material and Methods.** The trial was conducted at the Federal University of Lavras, Brazil. A total of 1,260 one-day-old male chicks Cobb 500 were weighed and randomly distributed into 6 treatments with 10 replicates, totaling 60 experimental units of 21 birds each. The treatments were T<sub>1</sub>-positive control 1 CORN/SBM (PC1); T<sub>2</sub>-negative control 1 (NC1); T<sub>3</sub>-NC1 + Emulsifier; T<sub>4</sub>-positive control 2 CORN/SBM/MBM (PC2); T<sub>5</sub>-negative control 2 (NC2) and T<sub>6</sub>-NC2 + Emulsifier. The negative control (NC) diet was formulated to be lower in metabolizable energy (-40kcal/kg) in the starter phase (1-21d) and (-75kcal/kg) in the grower phase (22-42d). The emulsifier was Excential Energy Plus (350g/ton). The birds and the leftover feed were weighed for feed intake (FI), weight gain (WG) and feed conversion ratio (FCR) in accordance with the ages (1-7, 1-21 and 1 to 42d). At 42 days of age, two birds per replicate were weighed and selected for slaughter to evaluate carcass yield, thigh and drumstick, wings, breast and abdominal fat. The results of the performance and the carcass parameters were submit to ANOVA and SNK test (P<0.05) by PROC GLM/SAS.

**Results and Discussion.** From 1 to 7 and 1 to 21 days of age, no effects were found (P>0.05) on FI, however, considering the entire evaluation (1 to 42d), the results showed higher feed intake (P<0.05) on negative control 2 (T<sub>5</sub>) in the diets based on CORN/SBM/MBM. The other treatments found no significance differences (P>0.05) on FI. The metabolizable energy reductions did not have enough influence on FI in the most treatments evaluated. From 1 to 7 and 1 to 21d, WG showed better results (P<0.05) for treatments containing emulsifier and positive control. Considering the entire evaluation (1 to 42d) of the trial, there were no treatment effects found (P>0.05) on the WG of the birds. Better results were found (P<0.05) on FCR from 1 to 21d for the positive control 2 (T<sub>4</sub>) based on CORN/SBM/MBM and the treatment containing emulsifier (T<sub>6</sub>). Better FCR (P<0.05) values were observed for the positive control 2 and the treatments containing emulsifer (T<sub>3</sub> and T<sub>6</sub>) from 1 to 42d. The worst FCR (P<0.05) were found in the negative control treatments (T<sub>2</sub> and T<sub>5</sub>) with metabolizable energy reduction of 40 and 75 kcal/kg in the phases from 1 to 21 and 22 to 42 days old, respectively. No significant differences (P>0.05) were found for the carcass yield, breast, thigh and drumstick, wings and fat pad measures.

**Conclusion.** In conclusion, the emulsifier improves the FCR on diets with metabolizable energy reduction back to the same level as positive control and is able to compensate energy reduction in the diet.

**Keywords:** Emulsifier, performance, energy, broiler