

Public Abstract

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Effects of reduced protein, amino acid supplemented diets on production and economic performance of commercial broilers fed from hatch to market age.

Five studies were conducted to determine the effects of reduced crude protein (CP) of commercial boilers for further processing. In experiments (EXP)1 (Cobb 500), 2(Ross 308), and 3(Ross 708), birds were fed diets with up to 1.5% reduction in CP to 42, 49, and 56d, respectively for EXP1, 2, and 3. The results were consistent for the three experiments. Performance and meat yield were not affected by the decrease in CP, but abdominal fat pad yield increased as CP decreased.

In EXP3 and 4, birds were fed diets with up to 2.1% decrease in CP. To EXP4, the lowest CP-diet(CT-2.1%) received supplementation of arginine(Arg), valine(Val), isoleucine(Ile), leucine(Leu), or a mixture of these four amino acids(All) to increase their levels to that of the control diet.

In EXP 4, a decrease in breast meat yield was observed when CT-2.1% was fed; in EXP treatments did not affect breast meat yield, which may have been due to the fewer replicates utilized for EXP2. In EXP4, carcass yield was decreased and supplementation with Ile and All restored carcass yield to control level. Abdominal fat pad yield increased as CP decreased and supplementation of Val and Arg decreased fat pad yield back to control level. Overall, these experiments suggest that a decrease of 1.5% in dietary crude protein does not affect performance and meat yield. However, a 2.1% decrease in CP may be too drastic even when the diet is supplemented with arginine, valine, isoleucine, leucine, or a mixture containing these four amino acids.