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Response to dietary crude protein content of broilers from 21 to 35 days

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P-195 (ID 157)

REDUCING DIETARY CRUDE PROTEIN CONTENT IN BROILERS AGED FROM D14 TO D31 OF AGE

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Response of broilers to a dietary protein reduction and amino acids profile is not constant and performances are often altered, contrary to pigs. The present trial aimed to study the possibilities of reducing dietary protein content for broilers aged from 14 to 31 days. Two experimental diets were formulated according to the Mack et al. (1999) profile in order to contain 190 g/kg and 170g/kg of crude protein, to be iso-energetic (2980 kcal ME/kg) and to be sub-limiting in digestible Lysine (9 g/kg). 32 male Ross PM3 were bred together then randomly assigned to one of the two treatments and were bred separately into individual cages. Body weight (BW), feed intake (FI) and feed conversion ratio (FCR) were recorded during the experimental period, and both breast meat yield and abdominal fat percentage were calculated on all the birds. No significant difference was found for BW and FI. FCR was not significantly different but was numerically affected by the decrease ($p=0.052$). Both breast meat yield and percentage of abdominal fat were significantly increased by the decrease of the dietary crude protein. To explain the discrepancies between the performances observed when decreasing protein level, it could be important to be focus on the AA profile. More specifically, future experiments will have to pay attention on the Thr ratio used and take into account the next limiting essential AA that are less studied (Val, Ile and Arg).

Mack, S., D. Bercovici, G. De Groote, B. Leclercq, M. Lippens, M. Pack, J.B. Schutte, and S. Van Cauwenberghe. 1999 : Ideal AA Profile and Dietary Lys Specification for Broiler Chickens of 20 to 40 Days of Age. Br. Poult. Sci 40 (2): 257–65.

Keywords: Broilers, low protein diet, Amino acids

P-196 (ID 159)

RESPONSE TO DIETARY CRUDE PROTEIN CONTENT IN BROILERS FROM 21 TO 35 DAYS

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This trial aimed to study the effect of dietary crude protein (CP) content on broilers between 21 and 35 days of age. 1520 male Ross broilers were bred together until 21 days of age and then randomly assigned to one of the 5 diets. Between 21 and 35 days of age, birds were bred in 40 floor pens (38 birds/pen, 8 pens/diet). 5 diets were formulated to contain 190, 180, 170, 160 and 150 g CP/kg. All diets had a digestible lysine content of 9 g/kg, the content of other essential amino acids was calculated to be at least at the Mack et al., 1999 profile. Individual Body weight (BW) and feed intake per pen (FI) were recorded during the experimental period. Feed conversion ratio (FCR) was calculated from BW gain and FI. After slaughtering, breast meat weight (BM) and abdominal fat (AF) were measured on 32 birds per experimental diet (4 birds/pen). Nitrogen excretion was estimated by difference between dietary nitrogen consumption and an estimation of body deposition. No significant difference was found for BW and FI among diets while FCR was found to be significantly impaired for CP contents below 170 g/kg ($p<0.01$). BM percentage was not affected by the decrease of CP content while AF percentage increased significantly ($p<0.01$). Nitrogen excretion was found to be reduced by about 13% when decreasing dietary CP content by 10 g/kg. To explain the impact of low dietary CP content on FCR several hypotheses are discussed, including the level of some non-essential amino acids.

Mack, S., D. Bercovici, G. De Groote, B. Leclercq, M. Lippens, M. Pack, J.B. Schutte, and S. Van Cauwenberghe. 1999 : Ideal AA Profile and Dietary Lys Specification for Broiler Chickens of 20 to 40 Days of Age. Br. Poult. Sci 40 (2): 257–65.

Keywords: Broilers, low protein diet, Amino acids, Nitrogen excretion