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Comparison of the effects of different methionine sources on performance, carcass characteristics and economical returns of broilers

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Abstract

This experiment carried out to compare the effects of three methionine (Met) sources including Met Hydroxy Analogue (MHA), DL-Met and 3A-protein, on growth performance, economic return and antibody production of broiler chicken. The bio-efficacy of MHA and 3A-protein are claimed to be equal to 74 and 100 % of DL-Met respectively. A total of 960 day old chicks (Ross-308) were distributed among 6 treatments and 4 replicate each containing 40 chicks. Treatments included 1) control diet (no Met supplements), 2) DL-Met-74% (1.92 kg/ton), 3) DL-Met (2.6 kg/ton), 4) MHA (2.6 kg/ton), 5) 3A-protein (2.6 kg/ton) and 6) 3A-protein + DL-Met (1 and 1.6 kg/ton respectively). 2nd treatment provided 74% of whole Met requirement of broilers to evaluate the MHA bio-efficacy. The feed conversion ratio, feed intake, weight gain and abdominal fat were the same between treatments except for control diet that was significantly worse than other groups ($p<0.05$). DL-Met group showed the highest antibody production against new- castle diseases that was significantly higher than control diet ($p<0.05$). Reduction in dietary Met level (DL-Met-74% and MHA) did not affect the growth, indicating that the Met requirement of Ross-308 might be less than what is offered in its catalogue. Feed conversion ratio and weight gain of 6th treatment were significantly better than control and DL-Met group ($p<0.05$). In terms of growth performance, production index, profitability and gross income, control diet with maximum Met deficiency was weaker than other experimental diets ($p <0.05$). Meantime production index of 6th treatment were significantly better than other groups. Profitability and gross income among treatments were the same except for control diet ($p<0.05$). In conclusion, using 3A-protein with DL Met has the best weight gain and the price of MHA must be less than 80% of DL-Met price to be justified for usage without any concern of negative effect on economic return.

Keywords: Broiler Chickens, DL- Methionine, Liquid Methionine, 3A-Protein, Antibody Production, Production Index, Economic Return