Effect of Digestible Threonine Levels on Broilers Fed Different Protein Sources

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The cheaper protein sources including Canola meal (CM) and Soybean meal (SBM) are poorly digestible and deficient in essential amino acids including threonine leading to poor growth performance in broilers. The aim of this study was to investigate the influence of digestible threonine (d-Thr) levels (100%, 110%, and 120%) of NRC (1994) recommendations on growth performance, gut morphology, ileal digestibility of protein and carcass characteristics in broilers fed SBM and CM based diets. In total, 900 1-d-old mixed sex broilers (Ross-308) were allocated to 6 dietary treatments with 5 replicate of thirty birds each for 35 d. The results indicated that the broilers fed 110% and 120% Thr supplemented diets resulted, on an average, 9 and 11% increased feed intake , 19 and 23% enhanced body weight gain, 22 and 23% better feed conversion ratio compared with those fed recommended (100%) level of Thr, respectively. The broilers fed 110 and 120% Thr supplemented diets had, similarly, 5 and 8% greater apparent ileal digestibility of protein compared with those fed diets containing recommended (100%) level of Thr, respectively. The broilers fed Thr (120%) supplemented diets, moreover, had a 15% greater breast meat and an 18% increased leg quarter yield was observed in broilers fed 120% The supplemented diets compared with those fed recommended level. A 36% increased villus height and 37% improved villus height to crypt depth ration was observed in broilers fed 120% supplemented Thr, compared with those fed recommended level. In conclusion, supplementation of Thr resulted in a better growth performance, increased ileal digestibility of protein, improved gut morphology and greater carcass characteristics of broilers fed CM and SBM diets. The supplementation of Thr, therefore, greater than NRC recommendation, is beneficial for broilers.

Recent Publication:

1. Najafi R, Ahmar R, Tazehkand G. Effect of Different Dietary Threonine Levels on Optimal Growth Performance and Intestinal Morphology in 1-14 Days Old Ross 308 Broilers. Revista Brasileira de Ciência Avícola. 2017;19(SPE):59-66.
2. Kheiri F, Alibeyghi M. Effect of different levels of lysine and threonine on carcass characteristics, intestinal microflora and growth performance of broiler chicks. Italian Journal of Animal Science. 2017:1-8.
3. Min Y, Liu S, Qu Z, Meng G, Gao Y. Effects of dietary threonine levels on growth performance, serum biochemical indexes, antioxidant capacities, and gut morphology in broiler chickens. Poultry science. 2017;96(5):1290-7.
4. Chen Y, Cheng Y, Li X, Yang W, Wen C, Zhuang S, et al. Effects of threonine supplementation on the growth performance, immunity, oxidative status, intestinal integrity, and barrier function of broilers at the early age. Poultry science. 2016;96(2):405-13.
5. Valizade MR, Sadeghi AA, Chamani M, Shawrang P, Kashan N. The Effects of Increase in Threonine to Lysine Ratio on Performance, Blood Parameters and Humoral Immune Responses of Male Broiler Chickens Challenged with Salmonella. Kafkas Üniversitesi Veteriner Fakültesi Dergisi. 2016;22(2):165-72.



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