

## Change in Growth Performance and Liver Function Enzymes of Broiler Chickens Challenged with Infectious Bursal Disease Virus to Dietary Supplementation of Methionine and Threonine

### ABSTRACT

**Problem statement:** The aim of this study was to verify the effects of methionine and threonine supplementations higher than the NRC recommendation on growth performance, liver function enzymes, blood parameters and immune tissues of broiler chickens challenged with infectious bursal disease. **Approach:** A total of 450 day-old male broiler chicks were assigned to nine groups. Chickens were fed by three graded levels of DL-methionine [NRC (M1), 2 times NRC (M2) and 3 times NRC (M3)] and three graded levels of L-threonine [NRC (T1), 2 times NRC (T2) and 3 times NRC (T3)] from day 1-42 of age. On day 28, all birds were challenged with a commercial live-IBDV vaccine. **Results:** Body Weight Gain (BWG) and Feed Intake (FI) and Feed Conversion Ratio (FCR) were significantly influenced by the dietary treatments in starter phase and either methionine or threonine at the highest levels significantly decreased BWG, FI and FCR in broiler chickens. A similar trend by methionine and threonine at the highest levels was noted on BWG and FI in grower phase. The highest level of threonine significantly increased spleen weight on day 28 (pre-challenge) and 14 days post challenge. At 14 days after challenge, dietary supplementation of methionine at NRC recommended level (M1) significantly increased the serum concentrations of Alanine Aminotransferase (ALT), aspartate Aminotransferase (AST) and Lactate Dehydrogenase (LDH). In the T3 group, the serum concentrations of AST and LDH were significantly decreased, whereas the serum uric acid concentration was significantly increased. **Conclusion/Recommendations:** In conclusion, our data suggest that the methionine and threonine requirement of male broiler chicks is higher for growth performance than was suggested by the last NRC committee and liver function enzymes results showed that methionine and threonine supplementation three times higher than NRC requirements in broiler chickens has not toxic potential

**Keyword:** Methionine, threonine, broiler, infectious bursal disease, performance, liver enzyme