

Effects of two ideal amino acid profiles and lysine levels on growth performance of broiler chicken

M.K.D.K. Piyaratne¹, N.S.B.M. Atapattu² and K.P. Wickramasinghe²

¹Computer Unit, Faculty of Agriculture, University of Ruhuna, Mapalana, Kamburupitiya

²Department of Animal Science, Faculty of Agriculture, University of Ruhuna, Mapalana, Kamburupitiya

Abstract

The ideal protein (IP) concept is becoming popular as a mean of increasing the utilization efficiency of dietary proteins by poultry. The objective of this study was to evaluate the performance of broiler chicks fed four diets having two IP s and two lysine levels. The experiment followed a completely randomized design in 2 x 2 factorial arrangement. Treatment factors were two IP (NRC or Illinois University chick protein; IUCP) and two lysine levels (1 or 1.25%). For both IP s, the levels of other essential amino acids (AA) were adjusted according to the level of lysine used; either 1 or 1.25%. Rations were formulated using linear model based computer software. From day 21 to 42, seventy two chicks in 24 pens received one of the above four diets *ad libitum*. Growth parameters such as live weight on day 42, weight gain from day 21-42, feed intake, water intake were not significantly affected ($P > 0.05$) either by the IP or by the lysine levels used. However, birds fed IUCP were heavier on day 42 and gained more weight between day 21-42 but consumed more feed compared to birds given NRC IP. Similarly, birds fed AA profiles based on 1.25% lysine gave numerically higher performance parameters and ingested lesser amount of feed compared to the birds who received 1% lysine. Consequently, FCR of the birds fed 1.25 lysine based IP was significantly ($P < 0.05$) lower ((2.1) than that of the birds fed 1% lysine (2.4). Water intake, water to feed ratio, dressing percentage and internal organ weights were not affected either by the AA profile or lysine level used. There was no significant IP x lysine level interactions with respect to any of the parameters tested. It was concluded that use IP formulated based on of 1.25 % dietary lysine increases FCR of broiler chicken.

Keywords: Ideal Amino Acid, Broiler growth, Linear model software