Two experiments were carried out to determine the AME content of four dietary fat sources including refined soybean oil (SBO), hydrogenated soybean oil (HSBO), recycled soybean oil (RSO), and acidulated soybean oil soap stocks (ASO), and to investigate the effects of the use of these oils in diets (3.5%) on growth performance of broilers from 1 to 42 days of age. In the first experiment, the AME of the oil sources were determined in Leghorn roosters (n=5) fed diets containing 5% of them, through either multiplying the digestibility of the oil by its gross energy value or difference between the AME values of the basal diet and a diet containing 5% of the oil. In the second experiment, a Complete Randomized Design was employed using four treatments replicated five times and twelve broiler chicks in each. The AME of the oils obtained by multiplying their GE by the corrected TTAD coefficient of the added fat appeared to be highest for the SBO (8,920 kcal/kg), HSBO (8,733 kcal/kg) and RSO (8,602 kcal/kg) and lowest (7,836 kcal/kg) for the ASBO. When calculated by difference, the AME of the oils turned out to be 9,016, 8,794, 8,765 and 7,906 kcal/kg for SBO, HSBO, RSO and ASBO, respectively.

The results of second experiment indicate that supplementation of different sources of oils have no effect of growth performance of broilers during 42 days. It is concluded that when conveniently processed, recycled soy oil, hydrogenated soy oil and acidulated soy oil soap stocks can be regarded as good substitutes for refined soybean oil in diets for broilers.

Keywords: broiler performance, AME, fat and oils

A nutritional feeding trial was carried out to investigate the effect of in ovo feeding of various nutrient solutions on the growth performance and gut development in commercial broilers (Cobb-400). A total of 540 fertile eggs with uniform weight were randomly divided into six groups each with three replicates of 30 eggs each. In ovo injection was carried out on 18th day of incubation with one of the following nutrient solutions 0.5 ml of 10 % glucose (T3), 0.5 ml of 0.5 % lysine (T4), 0.5 ml of 0.5 % threonine (T5), 0.5 ml of 0.5 % β-hydroxy-β-methylbutarate (HMB) (T6) into the amnion along with non injected (T1) and injected (0.5 ml of normal saline solution) (T2) control. 288 chicks were randomly allotted into 6 treatments each with 3 replicates of 16 chicks each. The birds were provided with ad libitum feed (BIS 2007) and water. The tissue samples (2 cms) were taken from duodenum, jejunum and ileum for histomorphometric measurements. Data recorded in the biological experiments were subjected to one way analysis of variance (ANOVA). Results revealed that the in ovo feeding significantly (P<0.05) improved hatchability and transit weight loss was significantly (P<0.05) reduced. In ovo feeding with lysine and threonine produced significantly (P<0.05) heavier day old chicks. Numerically higher body weight was observed in threonine fed group (2195.86 g), while the control birds had the lowest body weight of 1211.74. The mean cumulative feed consumption was significantly (P<0.01) low in threonine, HMB and lysine injected chicks compared to other groups. FCR was improved significantly (P<0.05) in threonine and HMB groups than control. In ovo feeding of significantly (P<0.05) improved duodenal, jejunal and ileal histomorphometry compared to control. From this study it was concluded that in ovo feeding has improved the growth performance and gut development of broilers which resulted in more production performance.

Keywords: In ovo feeding, broilers, growth performance, gut histomorphometry