THE EFFECTS OF MATERNAL DIETARY LYSINE INTAKE ON BROILER BREEDER OFFSPRING PERFORMANCE

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THESIS

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ABSTRACT

The aim of this study was to evaluate the effects of broiler maternal dietary lysine intake on progeny performance. Three experiments were conducted with chicks hatched from Cobb 500 breeders at 38, 48, and 60 weeks of age. Breeder hens received six dietary treatments (T1-T6) from 26 to 60 weeks of age, which allowed an intake of 800, 930, 1070, and 1200 mg lysine/bird/d (T1-T4) respectively. An intake of 800 mg/bird/d at 26 weeks was increased by 25 mg every two weeks to provide 1225 mg lysine/bird/d at 60 weeks (T5). An intake of 1200 mg/bird/d at 26 weeks was reduced by 25 mg every two weeks to supply 775 mg lysine/bird/d at 60 weeks (T6). A total of 320, 401, and 390 chicks were hatched from breeder hens at 38, 48, and 60 weeks of age respectively. Immediately after hatching, 270, 384, and 384 unsexed chicks from breeder hens at 38, 48 and 60 weeks of age respectively, were placed in an environmentally controlled room and randomly allocated (within a treatment) to single-tier cages (80 × 50 cm). Nine chicks from breeders at 38 weeks of age and 8 chicks from breeders at 48 and 60 weeks of age were placed in each pen, keeping chicks from the same treatment group together for 21 d. Chicks were fed *ad libitum* with a commercial broiler starter crumble for 21 d and water was provided *ad libitum* throughout the duration of each trial. Feed intakes (FI), body weight gain (BWG) and feed conversion ratio (FCR) were measured weekly. Data were subjected to analysis of variance using a generalized linear model of GenStat 12th edition. Simple linear regression model of GenStat 12th edition was used where appropriate. Significant improvements in offspring feed intake and body weight gain from 7-21 d were observed in chicks hatched from young breeder flocks (38 weeks) with low dietary lysine intakes (800, 930 and 950 mg/bird/d). The effect of maternal dietary lysine intake on offspring performance disappeared with the aging of the breeder flock (60 weeks). It was concluded that lower maternal dietary lysine intakes (800, 930 and 950 mg/bird/d) may improve feed intake and body weight gain from 7-21 d of broiler chicks hatched from younger breeder flocks (38 weeks).