Effect of dietary supplementation of medium-chain fatty acids on growth performance and prevalence of carcass defects in broiler chickens raised in different stocking densities

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Primary Audience: Poultry Nutritionists, Researchers

SUMMARY

A 3 × 3 factorial experiment was conducted to examine the effect of medium-chain fatty acids (MCFA) on performance and occurrence of carcass defects in broiler chickens raised in stocking densities of 14, 16, and 18 birds/m². A total number of 720 Ross 308 broiler chicks that were 1 d old were reared up to 49 d of age. Corn- and soybean meal (SBM)–based starter and grower diets were supplemented with 0, 1.5, and 2 g/kg Aromabiotic and provided to the birds ad libitum. Inclusion of 2 g/kg Aromabiotic in the diet significantly improved weight gain of the birds during 1 to 21 d of age compared with control birds (\(P < 0.001\)). A significant reduction in mortality (\(P = 0.004\)) and a significant increase in European performance efficiency index (EPEI; \(P = 0.036\)) were noted in the birds that received diets containing 2 g/kg Aromabiotic compared with control birds at 49 d of age. The birds grown in a placement density of 18 birds/m² had significantly improved FCR along with reduced feed intake (FI) during 1 to 49 d of age compared with those reared in a density of 14 birds/m². The mean EPEI was significantly greater in the birds raised in a density of 16 birds/m² (\(P < 0.001\)). At 48 d of age, litter caking was significantly increased in the birds raised in a density of 18 birds/m² and decreased in the birds that received dietary supplementation of Aromabiotic (\(P < 0.05\)). The influence of dietary Aromabiotic was significant related to reduced incidence and severity of footpad lesions and hock burns (\(P < 0.01\)). Frequency of lesions with a score of 2 to 5 on footpad and hock significantly increased for the birds raised in densities higher than 14 birds/m². It was concluded that dietary supplementation of 2 g/kg Aromabiotic improved early productive performance of broiler chickens and enhanced the PEI mainly due to decreased mortality. Dietary Aromabiotic improved broiler welfare as indicated by reduced foot defects in the birds raised in placement densities of 16 and 18 birds/m².

Key words: medium-chain fatty acids, performance, heat stress, broiler chicken, carcass defects

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