

Effect of broiler hatching system and diet composition on indicators of welfare and performance

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On-farm hatching systems for broilers are increasingly being used. Eggs are transported to the farm at d18 of incubation and chickens hatch in the house, where they have immediately access to feed and water. We showed that on-farm hatching of broiler flocks resulted in better performance, better litter quality and less footpad dermatitis compared to flocks that hatched in the hatchery. Because of the high performance of on-farm hatched flocks, we hypothesised that feeding on-farm hatched flocks a low-density diet would result in similar performance, but lower feed costs compared to hatchery hatched broiler flocks fed a standard diet. On-farm hatched (OH) and hatchery-hatched (HH) flocks were fed either a standard (S) diet or a low-energy/low protein diet (LE) (2% reduction in energy and lysine) in a 2x2 experimental setup. The experiment comprised three production cycles, with two replicates per hatching system/diet per cycle, resulting in N=6 replicates per treatment combination. Chickens (Ross 308 as hatched, same parent stock per cycle) were housed in pens (1150 chickens/pen) in mechanically ventilated rooms. For on-farm hatching the X-treck system (Vencomatic, The Netherlands) was used. Measurements included performance, welfare indicators and carcass yield. Data were analysed using the GLM procedure. In agreement with earlier studies, OH flocks had better footpad dermatitis scores (FPS) as compared to HH flocks (0.72 vs. 1.35; $P < 0.001$), which was probably due to the significant better visual litter score (5.5 vs. 4.6; $P = 0.02$). Diet had no effect on FPS and litter quality. LE diet resulted in a better gait score as compared to the S diet ($P = 0.03$). No differences were found in body weight at d39 and mortality. Total feed conversion ratio was better for HH as compared to OH flocks ($P = 0.03$), in contrast to results of previous experiments. Carcass% was higher for HH than OH flocks ($P = 0.05$), but no diet effect was found, and

no other differences in carcass composition were found. In conclusion, our hypothesis that providing a low energy/protein diet to on-farm hatched flocks would result in equal performance as compared to control flocks fed a standard diet, could not be confirmed. The present experiment confirmed the reduced risk for footpad dermatitis and better litter quality in on-farm hatched as compared to hatchery hatched flocks.

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