The effect of cooled perches on caged White Leghorn hen performance during chronic heat stress

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Introduction:

High ambient temperatures can cause heat stress in laying hens, compromising their welfare and leading to high mortality. Our objective was to determine if cooled perches improve hen performance and egg quality when birds are subjected to chronic heat stress.

Objectives:

The objective of this study is to determine if the installation of water cooled perch as an alternative cooling method alleviates the negative effects on hen performance and egg quality under chronic cycling heat.

Results:

At 17 wk of age, White Leghorn layers were weighed individually and assigned randomly to 1 of 6 banks. A bank consisted of 3 deck levels (bottom, middle, and top), with 2 cages per deck. Each bank was assigned to 1 of 3 treatments: conventional cages with perches filled with cooled water (CP), with ambient air perches only (AP) or without perches (NP). All banks were balanced distributed among the treatments within the same room. At 21 wk of age hens were exposed to 35^{o} C for 12 h (0600 to 1800 h) daily up to 35 wk of age. Number of eggs laid, including cracked and dirty eggs, were recorded daily. Feed utilization during a 7 day period was determined at 23, 27, 31, and 35 wk of age. BW were determined at 28 and 35 wk of age. Ten eggs per cage were collected on Tuesday and Wednesday weekly to measure egg weight and eggshell quality. Data were subjected to an ANOVA using the MIXED model procedure of SAS, with repeated measures for performance traits. Compared to both NP hens and AP hens, BW was higher in the CP hens ($P = 0.01$) with a higher feed intake ($P = 0.02$). The CP hens also had higher egg weight, breaking force, eggshell percent, and greater eggshell thickness ($P < 0.05$, respectively). Egg production, including cracks and dirty eggs, was not different among the treatments ($P > 0.50$). In conclusion, cooled perches reduced the deleterious effects of heat stress on BW, egg weight, and eggshell quality in White Leghorn hens without affecting egg production.

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