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Broiler chicken stocking density affects use of environmental enrichment objects

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Summary

Enrichment may promote species-specific behaviour and stimulate activity in broilers. We found that platforms and wood shavings bales were well used by commercially housed broilers. However, the extent to which these are used may depend on the stocking density; this has been tested in the current experiment. Broilers (Ross 308) were housed on two commercial farms of which one house/farm was divided into equal sections (± 5300 -8700 broilers/section). Two of these sections per house, during two production cycles, were used for the present experiment (4 replicates/treatment). Broilers in a section were stocked at 25 kg/m² (L) or 35 kg/m² (H) and each section was equipped with raised platforms (available for approximately 5% of the broilers) and wood shavings bales (1 per 1000 broilers). Behaviour and use of the enrichment objects was determined by scan sampling at 10 and 21 days of age and before depopulation. Observations were performed in 6 predefined areas of 2 m² per time block including an enrichment object and the surrounding litter area. Age and time effects were present but are not presented here. Significantly more broilers were found on the platforms in L as compared to H (2.9 vs 1.7 broilers, SED=0.2, P<0.0001). Foraging, dustbathing, comfort behaviour and object pecking were observed more frequently near the bales than the platforms, and significantly more L than H broilers were foraging (1.23% (L) vs. 0.8% (H), SED =0.098), dustbathing (1.87% (L) vs. 1.42% (H), SED =0.09), showing comfort behaviour (2.36% (L) vs 1.88% (H), SED=0.09) and object pecking (0.38% (L) vs 0.19% (H), SED=0.04), P<0.01 at least; whereas more H than L broilers were resting (81.4% (H) vs. 79.0% (L), SED=0.50) and standing 5.98% (H) vs. 5.11% (L),

SED=0.2), $P < 0.01$ at least. In conclusion, reducing the stocking density better enables the broilers to perform species specific behaviours stimulated by the enrichment objects.

Key words: broilers, environmental enrichment, behaviour, stocking density