**Effect of Environmental Enrichments on Lameness and Other Welfare Indicators of Broiler Chickens**

**N Wanigasekara1\*, RMAS Bandara1, TS Samarakone2, MP Senanayake3**

*1Department of Livestock Production, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka*

*2Department of Animal Science, Faculty of Agriculture, University of Peradeniya, Sri Lanka*

*3JP Poultry Products (Pvt) Ltd, Walovitawatta, Badalgama, Sri Lanka*

*\* nishadiwanigasekara38@gmail.com*

In Sri Lanka the present broiler chicken industry is moving towards more intensive with closed house systems. This study was conducted to assess the effect of environmental enrichments [elevated platform, hanging CDs (compact disc), straw bales and paddy husk area for dust bathing] on behaviour, lameness, welfare [footpad dermatitis (FPD), hock burns, plumage cleanliness and litter quality] and body weight of broiler chickens. Day-old 240 Indian River commercial broiler chicks were randomly allocated into four pens (n=60) including four replicates per treatment (with enrichments) and control (without enrichments) groups. Data were collected up to 35 days of age. Behaviour was recorded using the scan sampling method by live observations. Other welfare parameters were assessed using scoring systems. A generalised linear model, Mann-Whitney U test and ANOVA were used to analyse the treatment effects (SAS 9.0/IBM SPSS Statistics 25). Prevalence of FPD was lower (P<0.05) in the treatment group in all four weeks. The severity of Hock burns was also lower in the treatment group except in the first week (P< 0.05). Gait score results revealed better walking ability in the treatment group birds. Plumage cleanliness and litter quality were (P<0.05) better (except in the first week) in the treatment group. The latency to lie test revealed that birds in the treatment group had long-standing ability in the water (P<0.05). Overall, 11 birds with leg deformities were found only in the control group. There was no effect of environmental enrichment on the injuries of the birds. Body weight was significantly higher (P<0.05) in the treatment group in all four weeks. The frequency of preening and dust bathing behaviours was higher (P<0.05) in the treatment group while the frequency of resting was higher (P<0.05) in the control in both day and night in all four weeks. In conclusion, provided environmental enrichments reduced lameness while enhancing broiler chickens' overall welfare and body weight under closed-house conditions.

**Keywords:** *behaviour, broiler chickens, environmental enrichments, lameness, welfare*