**Behaviour and health of different turkey genotypes with outdoor access**

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Intense genetic selection for high growth rate has resulted in heavy turkeys with more health problems and behavioural changes, such as decreased locomotor activity. A veranda and free range area might enhance locomotor activity. This study investigated the effects of three turkey genotypes (B.U.T. 6, Hybrid XL-XL, and Hybrid Grade Maker-GM) and two housing conditions (barn as control, barn plus veranda and free range) on behaviour and health. In two trials, 1,352 one day-old male turkeys were randomly allocated to 12 littered floor pens (each 18 $m^2$). Six groups each were kept without or with veranda (12 $m^2$) and free range (240 $m^2$). Eight pens each contained 54 males (B.U.T. 6, XL) and four pens 61 males (GM). Turkeys were marked individually with transponders and kept for 20 weeks. The use of veranda and outdoor area (OA) as well as health data (mortality, leg posture, walking ability, and pododermatitis) were recorded and analyzed per individual bird using the GLM procedure of SAS®. Significant means were separated using Tukey-Test. Mean time per day in OA were significantly lower for strain B.U.T. 6 (13.4 h/day) compared to XL (16.5 h/day) and GM (15.9 h/day, $P<0.05$). The lightest genotype GM had the least food pad lesions (score 0.93) followed by XL (1.04) and B.U.T. 6 (1.25, $P<0.0001$). Groups with OA had a worse foot pad score compared to control groups ($P<0.0001$). Locomotion and leg posture was significantly influenced by trial and genotype ($P<0.001$). Locomotor activity showed significant genotype differences (GM: 1.47<XL: 1.63<BUT 6: 2.12). Genotype B.U.T. 6 had a worse leg score compared to XL and GM (1.45 vs. 1.27 and 1.32). The results indicate that the lightest genotype GM seems best suited, and the most common genotype in Germany, B.U.T. 6, seems least suited for alternative housing systems.

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