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EVALUATION OF ADAPTABILITY RESPONSE, THROUGH A BEHAVIOURAL OBSERVATION, OF FOUR DIFFERENT CHICKEN GENOTYPES REARED IN A FREE-RANGE SYSTEM

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Alternative poultry rearing systems such as organic and free range should be developed following the "One Welfare" concept, a link between animal and human welfare. Thus, the choice of chicken genotypes should take into account their adaptability to environmental conditions strictly linked in turn to animal welfare. The aim of this study was to assess the adaptability through a behavioural observation, of four different Slow Growing (SG) chicken genotypes: RedjA (A), Lhomann Dual (LD) Necked Neck (NN) and a Crossbreed (CB, Robusta Maculata x Sasso) free range reared. At hatching 400 chickens were randomly housed into 8 pens (2 pens per genotype; 50 animals each, 25 females and 25 males) and given outdoor access from 35 days of age, (0.10 m²/bird indoor and 4 m²/bird outdoor). The behavioural pattern of each pen was video-recorded from 42 d of age during 5 weeks, 2 times week and 2 hours per recording (9:00 to 11:00 am). Static, active, eating, comfort and social behaviours were then scanned every 30 minutes to record the percentage of animals expressing each specific behaviour. Data were analyzed by ANOVA with genotype, day, and their interactions as fixed effects and pen as a random effect. Static behaviours were more frequently observed in A chickens followed by NN chickens compared to LD and CB genotypes (55.4% 46.3% vs. 34.8% and 35.4% of chickens; $P < 0.001$), which depended on differences in chickens resting (13.5% and 11.9% vs. 8.5% and 9.9%; $P < 0.05$) and roosting (41.8% and 34.4% vs. 26.3% and 25.5%, $P < 0.001$). Conversely, LD and CB chickens showed more active behaviours compared to A and NN genotypes (33.9% and 32.0% vs 16.3% and 23.9%; $P < 0.001$), which is determined by the number of birds walking (21.8% and 24.8% vs. 10.0% and 20.9% $P < 0.001$). On the contrary, the number of birds hiding was lower in A, NN and CB chickens compared to LD (2.3%, 0.6% and 1.9% vs. 8.7%; $P < 0.001$). Concerning the eating behavior a higher number of A and NN chickens were found eating grass as compared to CB and LD (15.7% and 18.9% vs. 14.8% and 10.3%; $P = 0.001$). A lower number of A and NN birds showed comfort behaviours respect to CB and LD genotypes (7.0% and 5.1% vs. 7.9% and 11.3%; $P < 0.001$), which was due to the lower percentage of birds scratching and dust bathing ($P < 0.001$). In conclusion, the A genotype showed the less adaptive response, while LD chickens likely fitted better to free range systems based on their higher overall outdoor activity and a more complete ethogram.