

Hen grooming as a function of louse infestation and beak condition

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Because of its importance as an animal welfare issue, beak trimming has been the subject of many studies. However, none of these have assessed the effects of trimming on ectoparasite loads, even though beak-related grooming is probably an important means of removing such parasites. The aim of this study was to investigate the effect of louse infestation on the grooming behaviour of hens that were either beak trimmed (BT) or not trimmed (NBT). Hy-Line CV20 (W36) hens were observed; 16 hens were used as an un-infested control and 16 were experimentally infested with the body louse *Menacanthus stramineus*; 8 hens per treatment group were BT and 8 were NBT. The hens from each treatment group were arranged in two separate but identical poultry houses, and were housed two per cage. At 20 weeks of age, the hens were experimentally infested with the lice. They were then videotaped for two 20-minute sessions per day 9 weeks later, at which time there was a high rate of infestation. The amount of time spent grooming (preening or manipulating the feathers with the beak) and the number of grooming bouts were measured using focal animal sampling. A two-way between-subject ANOVA revealed a significant main effect of treatment. Hens infested with lice groomed more than controls ($F_{1,12} = 9.23$, $p = 0.01$), and also showed a trend to engage in more grooming bouts than controls. There was also a significant interaction between trimming and treatment ($F_{1,16} = 11.56$, $p = 0.004$). Post hoc tests revealed that BT infested hens groomed the most, and significantly more than the NBT control hens ($p < 0.001$); there was no significant difference between infested and control NBT hens. The same trend was observed for grooming bouts. However, louse counts at 9 weeks post-infestation were nearly three times higher in BT than NBT hens. Together, these data suggest that beak-intact hens can better modulate their own ectoparasite populations through effective grooming behaviour. Although these results are still preliminary, they may have important implications for hen housing systems in which beak-trimming is essential in order to control feather pecking and cannibalism.

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