

The influence of sensory factors on feather eating behaviour in laying hens

A. HARLANDER-MATAUSCHEK, U. FEISE, K. HÄUSLER, F. WASSERMANN and W. BESSEI

Department of Farm Animal Ethology and Poultry Science, University of Hohenheim, Garbenstr. 17-470c, 70599 Stuttgart, Germany

E-mail: harland@uni-hohenheim.de

Feather pecking in laying hens is one of the most widespread and serious animal welfare problems of poultry production. This redirection of normal pecking behaviour is influenced by the motivational system of feeding as feather pecking is positively associated with feather eating. The criteria of choosing feathers from conspecifics for consumption are not yet known. The aim of the present study was to determine feather characteristics which increase or decrease the attractiveness of feathers for ingestion. We investigated whether laying hens could detect and differentiate between bitter and sweet tasting feathers, respond to different feather lengths and regions and show preferences for feathers extracted from different body areas. Laying hens with a high propensity to peck at feathers of conspecifics in a deep litter system were individually given access to identical plastic elements with small holes in which feathers with the following characteristics were inserted. Twelve birds were offered 10 feathers soaked in a bitter tasting quinine solution. Another 12 birds were offered 10 feathers soaked in a sucrose solution. Ten birds were given access to four feathers each of 2, 4, 6 and 8 cm in length. Ten birds were given access to four feather pieces with a length of 2 cm each from the calmus, middle and tip of the feathers. Test groups were offered feathers daily over a period of ten days. Eleven birds were given access to three feathers each from the vent, breast and neck respectively over a period of four days. Individual plastic elements were used for feathers with different characteristics. The birds ate a higher number of sweet tasting feathers than bitter tasting feathers ($p < 0.001$). More feathers of 2 and 4 cm lengths were eaten while feathers of 6 and 8 cm length were avoided ($p < 0.001$). A ranking of preferred feather regions using the number of pieces eaten shows the tip (most eaten), middle and calmus of the feathers (least eaten) ($p < 0.001$). Furthermore, there was a tendency for birds to eat more feathers from the breast than from the neck area. The study detected characteristics of feathers which positively or negatively influenced feather consumption in laying hens. The results suggest that feather characteristics could play a role in the complex animal welfare problem of feather pecking.

Keywords: laying hens, feather pecking, feather eating, preference