



FEATHER PECKING AND CANNIBALISM IN LAYING HENS: CHALLENGE FOR THE INTERDISCIPLINARY RESEARCH

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Feather pecking has a low to moderately high heritability and seems to be affected by minor as well as major genes (Labouriau et al., 2009) and laying hen lines showing low (LFP) or high (HFP) levels of feather pecking in relation to an unselected control line were developed by genetic selection (Kjaer et al., 2001). Correlated responses to selection on feather pecking have been found in these lines (Buitenhuis and Kjaer, 2008). Birds in the low pecking line had higher egg mass output and better feed efficiency than birds in the high pecking line. This better feed efficiency was mainly due to better feather cover, but might also partly be caused by a higher general activity as found in a study on locomotor activity in pullets during rearing (Kjaer, 2009). A possible role for the serotonergic and dopaminergic systems in the aetiology of feather pecking has been revealed by pharmacological studies (Kjaer et al., 2004) leading to a hypothesis that variation in the DRD4 gene might be associated with pecking behaviour in laying hens. Re-sequencing DRD4 in birds from the experimental feather pecking lines indeed showed that DRD4 variants were significantly associated with feather pecking behaviour and showed also that the associated region extends in a neighbouring gene, deformed epidermal autoregulatory factor 1 (DEAF1), which is involved into the serotonergic system and thus represents another candidate gene for feather pecking (Fliskowski et al., 2009). Feather pecking and cannibalism are very complicated behaviours and therefore we apply many different disciplines in order to better understand the genetic and physiological background. At the same time research into genetic mechanisms might provide tools for selection against feather pecking in commercial lines, even without knowing the exact reason to the problems. This might turn out to be the most efficient and fastest solution to this welfare problem in commercial laying hen populations.

Key words: Genetic selection, dopamine, laying hens, feather pecking behavior

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