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# Comparisons of damaging feather pecking and time budgets in male and female turkeys of a traditional breed and a genetically selected male line

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## Abstract

Feather and skin pecking leading to feather loss and tissue damage is a welfare problem in commercial turkeys. A factorial experiment was designed to compare a line of unselected turkeys that previously did not exhibit this behaviour with a genetically selected male line with a propensity for damaging pecking. We also compared the time budgets of male and female turkeys from the two lines at 3, 6 and 9 weeks of age and at different times of the day. Damaging feather pecking occurred in 32% of male and 15% of female male line turkeys but was not observed in the traditional line. Time budgets of males and females were similar. Preening increased and resting, feeding and general pecking declined with age. Resting was higher in the afternoon than in the morning and male line turkeys were observed resting more often than traditional turkeys at 3 and 6 weeks. Traditional turkeys displayed more gentle feather pecks than male line poults at 9 weeks. Male turkeys of both lines showed more strong feather pecks and pulls at 3 weeks whereas female turkeys showed more at 9 weeks of age. The frequency of strong feather pulls recorded electronically increased with age but was not related to mortality. It is suggested that damaging feather pecking in turkeys may be the result of vigorous investigative pecking.

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## 1. Introduction

Feather pecking that results in death or bodily injury leading to carcass damage and downgrading is an important welfare and economic problem in turkeys. Controlling feather pecking and cannibalism is usually achieved by the use of low light intensities, or where this is not possible, by beak trimming. Neither solution is desirable from the perspective of the welfare of the birds nor do these practices improve the public image of intensive farming systems. Furthermore, the UK Farm Animal Welfare Council (FAWC, 1995), for example, has recommended the abolition of beak trimming as soon as practically feasible and welfare codes increasingly stipulate minimum light intensities that do not control the problem.

There is very little known about why feather pecking and cannibalism occurs in turkeys. The spectral distribution and source of light have both been shown to affect the incidence of injuries (Moinard et al., 2000). The development of individual behaviour is a continuum of interactions between the animal's genome and its environment and changes over time due to maturational processes. There is convincing evidence in chickens that feather pecking and the propensity to peck have an inherited component (Kjaer et al., 2001; Kjaer and Sørensen, 2002). Hughes and Grigor (1996) speculated that there was a genetic propensity for a certain proportion of time to be spent in beak-related activity and that if turkeys were not able to meet this requirement by pecking other substrates they redirected their pecking towards other birds.

For several years, a small breeding flock of traditional "unimproved" turkeys was maintained at the Roslin Institute that were not debeaked and did not exhibit damaging pecking. This is in marked contrast to contemporary commercial lines and suggests that a strong genetic basis for damaging feather pecking (FP) and cannibalism (C) exists in turkeys. The main objective of the experiment reported here was to test the hypothesis that the traditional breed did not engage in damaging feather pecking and cannibalism in the same environment as commercial turkeys. In addition, we evaluated the hypothesis that the traditional line would show far less general pecking activity compared with the commercial line and that males, in which feather pecking and cannibalism are generally worse than in females, would also show more pecking activity. The observations were repeated at 3, 6 and 9 weeks of age to compare the development of pecking behaviour over time in the two lines because feather pecking and cannibalism are more prevalent as turkeys age. Time budgets were determined by scan sampling and pecking behaviour was assessed by behaviour sampling. The identity of the aggressor and victim, the type of pecking and the area of the body that was pecked were recorded. The frequencies of injuries that required intervention, type of treatment, date treatment was administered and affected bird, were also noted.

In addition to behavioural observations, the numbers of strong pecks and pulls in individual birds was recorded using an electronic system (Bessei et al., 1997). The pecking target was a bunch of white string that had previously been shown to be an attractive pecking stimulus in chickens (Jones and Carmichael, 1999b). The objective of this part of the experiment was to determine the suitability of the equipment for predicting FP and C as a welfare friendly tool for genetic selection of individuals with a low genetic propensity for FP and C.

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