

Beak Trimming in Chickens: a welfare cost or benefit?

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Introduction

Beak trimming (BT) is used almost universally in the chicken industry to reduce feather pecking, aggression and, ultimately, cannibalism (Cheng, 2007). Although BT helps to control cannibalism, it is controversial as it is believed to cause pain, thereby compromising bird welfare (Glatz & Bourke, 2006).

Discussion

Appleby *et al.* (2004) identify the dilemma of BT: it reduces cannibalism but has other negative welfare effects on the birds. The recent study by Gentle & McKeegan (2007) intended to address welfare concerns by testing the effectiveness of infrared trimming (IRT), an alternative method to the usual hot-blade BT. Guesdon *et al.* (2007) recognised the contentious nature of BT in welfare circles and analysed the effects of BT and cage design on mortality and egg production for layer hens. Meanwhile, Cheng (2007) focused on the pain caused by BT and the necessity for an alternative that would not compromise welfare. Upon reviewing recent literature, Cheng (2007) proposed that the best solution to enhance welfare would be to eliminate the need for BT by genetically selecting non-aggressive traits and developing alternative pain-free methods of BT until such strains are available.

Gentle & McKeegan (2007) constructed a randomised controlled study with 300 chicks divided into control, IRT and hot-blade groups. Housing, lighting, food and water were the same for all groups. Weekly weights and behaviour, including feeding and pecking the environment and other birds, were monitored for six weeks. The results showed that there were no significant effects of any of the treatments on behaviour immediately after BT. This is consistent with the so-called painless phase that occurs immediately after BT as described by Cheng (2007). Interestingly, even after six weeks, there was no significant difference in behaviour among the groups, except for reduced environment pecking by BT birds at 3-4 weeks. Birds BT using the hot-blade method had lower body weights than the control groups at six weeks, whereas birds treated with IRT showed no significant weight difference. While Gentle & McKeegan (2007) concluded that there was no evidence that IRT produced pain, Cheng (2007) reported that loss of appetite is a reliable indicator of pain experienced from BT, suggesting that hot-blade BT birds encountered more pain than other groups. Therefore the IRT technique appears to be superior to hot-blade BT for both welfare and productivity outcomes.

Guesdon *et al.* (2007) measured mortality and performance to determine whether BT is necessary to prevent cannibalistic mortality. In this study 2028 hens were randomly assigned to four cage types: two standard cages with either six-hen or five-hen capacity, and two furnished cages both containing 15 hens with either 770 or 1134cm² available per hen. Only half the birds, (those in alternate cages) received hot-blade BT at nine days of age. Mortality and performance (eggs laid) were recorded daily. Mortality was significantly lower in BT hens (<5%) than in non-BT hens (>40%) in both standard and furnished cages. Importantly, mortality was significantly lower in the two furnished designs than in the standard cages. Performance was considerably lower in non-BT hens compared with BT hens, but this difference was due to the mortality of non-BT hens. These results confirm that BT reduces mortality but also show that hen density influences

cannibalistic behaviour, a finding that has significant welfare implications. Cheng (2007) confirmed that overcrowding in both cage and barn systems will lead to cannibalism. Unfortunately, in this study, mortality was the only measure of welfare and factors such as pain were not taken into consideration.

Cheng (2007) reviewed recent research on BT highlighting three areas of concern. First, BT-induced morphological changes to beak anatomy. Cheng (2007) qualitatively noted that BT can cause inflammation, abnormalities of beak shape and painful neuromas. The second area of concern is pain. This is categorised by Cheng (2007) into three phases: painless, acute and chronic. As seen above in the study by Gentle & McKeegan (2007), the painless phase immediately follows an injury. Cheng (2007) describes the acute pain phase as the period from the painless phase until the injury has healed and the chronic pain phase as pain lasting weeks or months beyond the expected injury healing time. Cheng (2007) included results from studies showing BT birds displaying responses identifiable as indicative of pain, for instance, increased heart rate, loss of appetite and reduction of environmental pecking. This is consistent with the study reported by Gentle & McKeegan (2007) in which BT birds had lower weights and reduced environmental pecking. These behaviours occurred in both the acute and chronic phases. Third, factors that affect pain in BT birds were reviewed. Topical analgesics reduced pain-indicating behaviours in the acute phase, removing less beak reduced indicators of chronic pain and performing BT at <10 days reduced the incidence of both acute and chronic behaviours that indicate pain. Despite arguing that genetic selection for non-aggressive tendencies was the best alternative, Cheng (2007) cited no research that concluded that this was achievable.

Conclusion

All three articles agree that current BT methods greatly reduce mortality, which, in itself, is a welfare benefit. Alternatives that reduce pain would enhance the welfare of chickens. These articles highlighted a number of alternatives that produced welfare benefits. Gentle & McKeegan (2007) showed that IRT had welfare and performance benefits over hot-blade BT. Guesdon *et al.* (2007) showed that a furnished environment slightly decreased mortality. Cheng (2007) noted that trimming less beak, trimming at <10 days and using topical analgesics all reduced pain indicators. Regrettably, none of the studies investigated reduction of light intensity as a way of reducing cannibalism, an alternative with some promise, according to Parkinson & Cransberg (2003) and Shinmura *et al.* (2006). Implementing all of these changes to current BT practices should significantly improve chicken welfare. Ideally, in the future, environmental modification or breeding for non-cannibalistic behaviour will eliminate the need for BT altogether.

References

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