

## Effect of hot blade and infrared beak trimming on beak condition, production and mortality of laying hens

P.C. GLATZ

Pig and Poultry Production Institute, Roseworthy Campus, Roseworthy, South Australia, Australia, 5107.

**E-mail:** [glatz.phil@saugov.sa.gov.au](mailto:glatz.phil@saugov.sa.gov.au)

The effect of hot blade (HB) and infrared (IR) beak trimming methods on beak condition and production in hens was evaluated. IR trimming is undertaken by industry at day old while HB trimming is done at 10 days. Fifty Hy-Line Brown chicks were treated at hatch using an IR machine which directs heat onto the inner tissue of the beak. After a few weeks the tip of the upper and lower beak dies and the beak becomes shorter with blunt tips. Another 50 chicks were HB trimmed at 10 days with one half of upper beak and one third of lower beak removed using a Lyon machine. Pullets from both treatments (ten replicates of 5 birds per treatment) were housed in rearing cages until 18 weeks and in layer cages (545cm<sup>2</sup>/bird) until 66 weeks. Beak length, beak step, beak condition and production were measured. Beak condition was measured qualitatively using a 1-3 grading system using beak pictures as a guide (Glatz and Hinch, 2008). Data were analysed with ANOVA using Systat software. Upper beak samples were obtained from 5 birds for each of the IR and HB treatments at 32, 144 and 420 days of age. The presence of neuromas was assessed by fixing and decalcifying the beaks, embedding in wax and making consecutive 7 micrometre sagittal sections of the entire beak. Sections were stained with haematoxylin and eosin. Beak condition (a measure of its appearance and shape) was significantly better ( $P<0.05$ ) for IR treated birds in the rearing period but by mid lay was similar for both treatments. The upper beak length of IR trimmed birds was consistently ( $P<0.05$ ) longer (4mm) than HB trimmed birds throughout the laying period. The amount of beak exposure, lamp power and duration resulted in IR beaks which were considerably longer than the HB beaks. No difference in egg production was observed throughout the production period between the beak-trimming treatments similar to the findings of Dennis *et al.*, (2008), although body weight of IR birds was higher ( $P<0.05$ ) and egg weights lower ( $P<0.05$ ). The histopathology of beaks showed that traumatic neuromas persisted to adulthood with both IR and HB trimming (Lunam, unpublished). The histological data indicates the IR method needs further development to reduce the incidence of neuromas perhaps by reducing IR lamp power and beak exposure time. HB trimming should be done at day old according to the Australian Code of Practice to allow neuromas to resolve and reduce chronic pain.

**Keywords:** layer welfare, beak trimming, beak condition, production