

## Welfare of broiler chickens reared under two different types of housing

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### Abstract

We compared closed- and open-sided industrial houses with respect to the welfare of broiler chickens in southern Brazil. Ten flocks from each design were evaluated and measures divided into the following categories: i) bird health: contact dermatitis on the breast and abdominal areas, bird soiling, foot-pad dermatitis, hock burn, lameness, fractures, bruising, scratches, dead on arrival, diseases; ii) environmental measurements: relative humidity, temperature, air velocity, ammonia (NH<sub>3</sub>), carbon dioxide (CO<sub>2</sub>), light intensity, litter moisture; iii) behaviour: bird behaviour, touch test; and iv) affective states: qualitative behaviour assessment. Closed-sided houses showed worse contact dermatitis on the breast and abdominal areas, lower exploratory behaviour prevalence, higher NH<sub>3</sub> (11.2 [± 6.8] vs 7.5 [± 3.9] ppm) and CO<sub>2</sub> (1,124.9 [± 561.5] vs 841.0 [± 158.0] ppm), lower light intensity (6.9 [± 6.3] vs 274.2 [± 241.9] lux), while open-sided houses had a higher prevalence for scratches and panting behaviour, and lower air velocity (2.1 [± 0.7] vs 1.1 [± 1.0] m s<sup>-1</sup>). Stocking densities of 13.9 (± 0.4) and 12.0 (± 0.3) per m<sup>2</sup> for closed- and open-sided houses, respectively, likely influenced some results. All values shown are means (± SD). Even though open-sided houses presented fewer animal welfare restrictions (according to five indicators as opposed to three for closed-sided houses), both revealed important welfare problems, evidenced by poor environmental indicators, behavioural restrictions and injuries.

**Keywords:** animal welfare, behaviour, dark-house, semi-climatised, slaughter, summer/autumn