



EFFECTS OF LIGHT SOURCES AND INTENSITY ON BROILERS GROWN TO HEAVY WEIGHTS. PART 1: GROWTH PERFORMANCE, CARCASS CHARACTERISTICS, AND WELFARE INDICES

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BACKGROUND

Birds' eyes are more sensitive to a wider spectrum of colors than human eyes are. This is due to humans having 3 visual cone cells compared to birds' 4 to 5 cone cells, including a double cone that allows them to see in the ultraviolet spectrum. Due to this greater sensitivity, a poultry lighting system's degree of intensity can have a significant impact on the production levels and overall welfare of the birds.

ACTION

This study evaluated the effect of light sources and light intensity on growth performance, carcass characteristics, and welfare indices of heavy broilers (>3.0 kg). There were four light sources (incandescent, compact fluorescent, a poultry-specific LED (ONCE® AgriShift® MLB), and a neutral LED) with two light intensities (5 lux or 20 lux). Each light source was evaluated with each light intensity. Continuous lighting at 20 lux was provided from placement to 7 days; 10 lux from 8 to 21 days; either 5 or 20 lux from 22 to 53 days; and continuous lighting at either 5 or 20 lux from 54 to 56 day.

CONCLUSION

At 56 days of age, birds reared under the ONCE® AgriShift® MLB bulbs were heavier (4.21 vs 4.12 kg) than birds reared under incandescent bulbs. However, treatment did not affect feed intake, feed conversion, mortality, carcass yield, ocular development, or immune response. This suggests that the light sources evaluated did not compromise welfare of heavy broilers. Therefore, it can be concluded that the light sources evaluated in this study are suitable for replacement of incandescent light source in poultry facilities to reduce energy cost and optimize production efficiency. Additionally, there were no differences in growth performance or other parameters for the two light intensities which suggests brighter light can be utilized in the grow out without negatively affecting the birds.

DISCUSSION

This study agrees with predecessor studies that incandescent lighting can be replaced with LEDs without adverse effects on broiler growth performance. The study also shows that LED light bulbs could be a more efficient alternative light source than incandescent light bulbs for commercial poultry facilities to reduce energy usage, all while improving the overall performance of the bird.