

ANALYSIS OF THE IMPACT OF LIGHT SPECTRUM ON HEALTH AND PERFORMANCE IN BROILER CHICKENS: A CRITICAL REVIEW

I. Bolohan (Acornicesei)^{1*}, R. Lazăr¹, B.M. Mădescu¹,
M.A. Davidescu¹, C. Pânzaru¹, P.C. Boișteanu¹

¹Faculty of Food and Animal Sciences, “Ion Ionescu de la Brad” Iasi University of Life Sciences, 8 Mihail Sadoveanu Alley, 700489 Iasi, Romania

*e-mail: ioana.bolohan@iuls.ro

Abstract

Light is an essential factor in broiler chicken production and welfare management, having a significant impact on physiological and behavioral aspects. The avian visual system, which enables birds to perceive light in the 380-740 nm range, plays a crucial role in modulating their behavior. The main parameters of artificial lighting, such as light intensity, photoperiod, and wavelength spectrum, exert various influences on the growth performance, behavior, and welfare of broiler chickens. Recent advancements in lighting technology create new possibilities for improving conventional lighting programs in poultry housing. Recent studies have shown that blue light with a wavelength of 450 nm and green light, at 550 nm, have had beneficial effects on body weight in broiler chickens. In contrast, red light, with a wavelength of 700 nm, negatively affected weight gain and amplified aggressive behavior. In general, lighter colors have significantly impacted broiler behavior, though the effects on their welfare were less pronounced. In a global context where the demand for poultry meat continues to rise, optimizing rearing conditions, including lighting, plays a crucial role in improving production efficiency, meat quality, and bird welfare. Therefore, this review topic offers a relevant contribution to enhancing sustainability and productivity in the poultry sector..

Key words: broilers, growth performance, lighting color, preference, welfare