

Bristol Poultry Research Farm



Lighting for enhanced chicken welfare and commercial output

Challenge

Around 65 billion chickens per year are reared globally for meat and eggs, the vast majority in completely enclosed, carefully managed, biosecure environments.

A key aspect of creating a suitable indoor environment for poultry is light. Research has demonstrated measurable effects of light colour on animals, including changing food intake, delaying sexual maturity and influencing behaviours such as fear and aggression. Light is also vital for maintaining circadian (day/night) rhythm.



Current industry standard lighting is white light-emitting diodes (LEDs) that dim to blue or dim to red. However, these lights exhibit strong spectral (colour) peaks, so they do not replicate natural daylight and offer no adaptive control opportunities. To date, there has limited scientific research to inform their use.

Action

Researchers at the University of Bristol Vet School are leading a collaborative research study to develop and test the first ever bio-adaptive, circadian, smart lighting system for broiler chickens that will recreate the properties of natural daylight. The system will use truly broad-spectrum lighting and the latest LED technology, combined with sensors and a remote management platform.

The work is being carried out within the CIEL-supported Bristol Poultry Research Farm. The facility enables testing to be carried out in an environment which mimics commercial conditions. 8 experiment rooms are each equipped with individually controlled lighting and comprehensive camera coverage, allowing detailed behaviour monitoring.

Working alongside researchers at Bristol are Campden BRI and Greengate Lighting. The project attracted a £100,000 grant from Innovate UK, the UK's innovation agency.

Impact

The research team are aiming to achieve a step change in lighting for animal husbandry, enhancing productivity and animal welfare in the food production industry in the UK and globally.

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