

Effect of AviLighting™ LED Feeder Light on light intensity near feed & water areas, broiler body weight uniformity & litter consumption at time of housing to 3 weeks of age in an antibiotic-free chicken program. J. L. McNaughton¹, M. Roberts¹, M. Barnas¹ & S. Holland². ¹AHPharma, Inc., Salisbury, MD. ²i-lighting LLC, North East, MD.

Incandescent bulbs (INC), compact fluorescent lamps (CFL) & light emitting diodes have traditionally been mounted on 7.5'-9' high ceilings. Maximum broiler-chicken & turkey performance light intensity (LIN) is achieved by emitting >3 foot candles (*fc*) of light in the feed/water areas; a benchmark that typical ceiling-mounted lights rarely meet. Three trials (chicks reared on 32'x50' research floor pens & 42'x340' commercial chicken houses (paired) with pine-shaving litter bedding) were conducted to determine the effect of the AviLighting™ Feeder Light (LED_f, 50% of feeders, lights 5' apart) on broiler body weight uniformity, visual bird behavior & litter consumption at time of housing to 21d; compared to INC 12' apart & CFL (55W first 6d & 7.2W remaining 15d, 12' apart). Lighting goals (at water-line) were >4*fc* initial & 1*fc* 11-21d.

During all trials, LIN at water measured 4.8*fc* (LED_f), 1.6*fc* (INC), 3.47*fc* (55W CFL) & 1.72*fc* (7.2W CFL). Chick crop 'filling' was measured 8 & 24hr post-housing; no affects were found. Litter bedding-eaters (8hr post-housing) measured 5% for LED_f & >20% for both INC & CFL. Video & sound recording demonstrated that light attraction around feed/water for the initial 72hr post-housing was 96% of birds (LED_f), 82% (CFL) & 58% (INC). 48hr mortality average was 0.22% (LED_f) & 1.15% (CFL).

DC current consumption was 3.6Wh, 7.2Wh, & 60.0Wh output for LED_f, CFL & INC lamps, respectively. During the entire 21d trial (42'x340' chicken house) total energy consumption of LED_f was 54% less than the combination of CFLs (55W 6d & 7.2W 15d).

Ceiling mounted lamps with widely distributed light caused birds to scatter. LED_f provided concentrated light intensity & improved 21d body weight uniformity. By emitting intense light (>12.8*fc*) only at the feeder, LED_f attracts & retains birds in critical areas.

Tags: Poultry Lighting, AviLighting™, Light Emitting Diode, LED, incandescent, CFL, chicken, turkey, antibiotic free

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