



# ACP LIGHTING FACTSHEET

## Lighting for broilers

The new Code of Practice for broiler chickens is now complete, and Chicken Farmers of Canada is in the process of amending the Animal Care Program to be in line with the new Code. The Code contains new requirements around lighting programs, and these will be mandatory in the new Animal Care Program Manual, expected out in mid-2018. For now, they are being added to the program as highly recommended to provide extra time for any adjustments that may need to be made to comply with the new requirements.

This info sheet is being provided to explain the rationale behind the new lighting requirements and describe some best production practices for the successful implementation of a lighting program.

### Dark = 20% of daytime light intensity

There has been an abundance of recent research demonstrating the benefits of a dark period, both for production and bird welfare<sup>1</sup>.

- A dark period allows controlled growth early in life which gives skeletal and metabolic systems a chance to develop before the birds get heavy
- A dark period also supports faster growth during the mid to later grow-out period so the resulting birds are as heavy or heavier as those not allowed a dark period.
- Darkness benefits birds by allowing them to sleep and develop circadian rhythms, which is important in immune function, growth rate, digestibility (improving feed efficiency), lameness, and general health.

- Providing between 4 and 10 hours of darkness per day resulted in greater feed intake and feed efficiency, reduced mortality and lameness, and more normal behaviour<sup>2</sup>
- Providing broilers with 23 hours of light throughout the grow-out period has a negative effect on growth rate, feed intake, mortality, processing performance, and broiler welfare<sup>2</sup>

## Brooding period:

The use of constant light for the first 7 days of life has traditionally been thought to help ensure young chicks have adequate feed intake, but the basis for this is not known. Some recent work has shown benefits of starting lighting programs earlier. For example, studies by Karen Schwean-Lardner and Hank Classen in Saskatchewan found that providing 6 hours of darkness starting at 1 or 4 days of age (compared to 7 or 10 days of age) had the following effects:

- A significantly lower percentage of mortality and culls from 10 to 39 days of age when darkness was started at 1 day of age
- Did not impact body weights at 39 days of age, even though it did slow weight gain early on
- Did not impact overall feed efficiency from 0 - 39 days of age
- No impact on breast yield when the lighting program started at 4 days of age

What are the requirements in other countries, and what do the breeder manuals recommend?

Country	Minimum light intensity	Hours of darkness
US	5 lux	4 hrs except first and last week of grow-out
EU	20 lux illuminating 80% of the area	6 hrs except first 7 and last 3 days of grow-out
New Zealand	20 lux	1 hr for first four days 4 hrs for rest of grow-out
Australia	20 lux for first 7 days 20 lux thereafter as an average, no one spot can be < 10 lux	1 hr for first 7 days 4 hrs for rest of grow-out
Ross broiler manual (2014)	30-40 lux until 7 days of age 5-10 lux thereafter	1 hr for first 7 days 4-6 hrs thereafter
Cobb broiler manual (2012)	25 lux in darkest spots until 7 days of age 5-10 lux thereafter	1 hr for first day, 6 hrs by 100-160g 5 hrs 5 days before kill, reducing 1 hour each day until kill

### Some Best Production Practices for success with a lighting program

Appendix E in the new Code talks about management practices that will help getting the best outcomes possible with a lighting program.

- Use a dawn to dusk system. This involves the light coming on and going off over a period of 15-30 minutes, rather than abruptly. This can be done using the computer light controller, or alternatively having banks of lights turn on/off in sequence, 15 minutes apart, for example.
  - This mimics natural day/night cycles, and will also reduce crowding at the feeder if it is an issue
- Always ensure adequate feeder space, and increase as necessary. This is especially important when feeding lower density/mash feeds
- When increasing the hours of darkness, do so gradually over a number of days, by approximately one hour per day. Similarly, make changes to light intensity over a number of days
  - Abrupt changes to daylength or light intensity can reduce feed intake by up to 20%
- Providing hours of darkness in one period (as required in the Code), as opposed to several shorter periods, may allow a higher quality sleep and reduced mortality

#### Works Cited

- 1 Poultry Code of Practice Scientific Committee, "Code of practice for the care and handling of chickens truekys and breeders: review of scientific research on priority issues," November 2013. [Online]. Available: [http://www.nfacc.ca/resources/codes-of-practice/chickens-turkeys-and-breeders/Poultry\\_SCReport\\_Nov2013.pdf](http://www.nfacc.ca/resources/codes-of-practice/chickens-turkeys-and-breeders/Poultry_SCReport_Nov2013.pdf). [Accessed January 2017].
- 2 K. Schwean-Lardner and H. Classen, "Lighting for broilers," 2010. [Online]. Available: [http://en.aviagen.com/assets/Tech\\_Center/Broiler\\_Breeder\\_Tech\\_Articles/English/LightingforBroilers1.pdf](http://en.aviagen.com/assets/Tech_Center/Broiler_Breeder_Tech_Articles/English/LightingforBroilers1.pdf). [Accessed January 2017].