

SCOOP from the COOP



LIGHTING IN BROILER BARNs

By: Ray Delbridge, Poultry Specialist

How does lighting affect the growth of birds?

Lighting can impact feeding behaviour. Light intensity should be set between 30-40 lux from 0-7 days of age, then after 7 days between 7-10 lux at the minimum. This will improve feed activity and growth. Running your lights at 5 lux can have some negative impacts on FCR, mortality, growth, reduced activity (dust bathing, scratching etc.). Speak to your feed rep for recommendations about running lights after the first 7 days.

How long a dark period should broilers have?

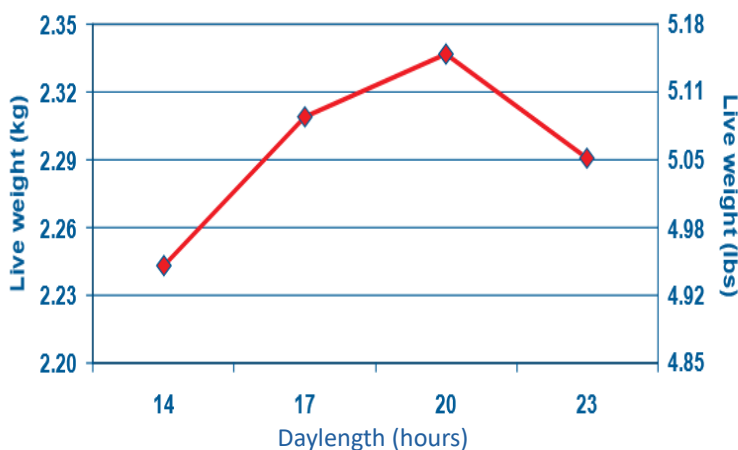
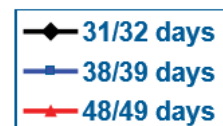
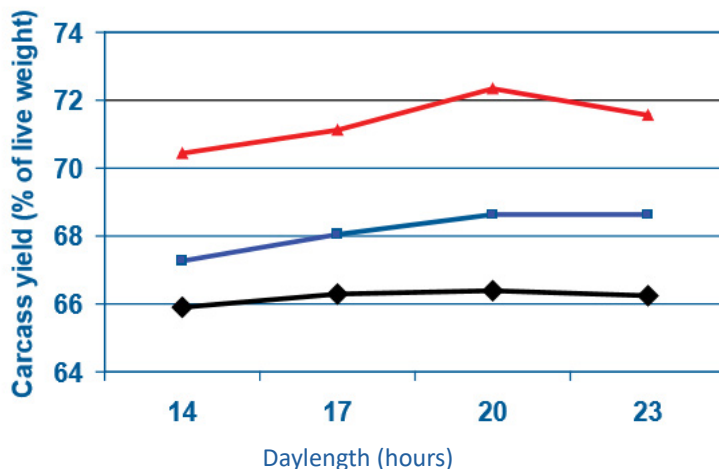
There is no silver bullet or one size fits all solution. The length of time the birds spend in the barn can vary depending on target weights. Some are in the barn for 37 days while others are in the barn for 48 days. Birds marketed at older ages do perform better on shorter day lengths than birds marketed at younger ages. Broilers adjust eating habits to compensate for shorter days as they get older. Flocks with 20 hours of light a day tend to perform better at all ages. Birds perform best when given in between 4 and 7 hours of dark. When given 7 hours of dark, the flock mortality level will lower. However, there is no benefit to extend the period of darkness beyond 7 hours.

What should be considered when looking for a lighting program?

- Market: how long birds are in the barn, weight
- Stocking density
- Feed Type: low density, mash feeds require more time
- Cost of feed & impact of day length on feed efficiency

How is broiler welfare affected by day length?

Mortality and leg incidences will increase when day length is increased past 20 hours of light, and birds will be more inactive. Studies show the best welfare is achieved with 17 hours of light, as time spent eating also occurs optimally in terms of ingestion and feeding behaviour. Studies show when birds



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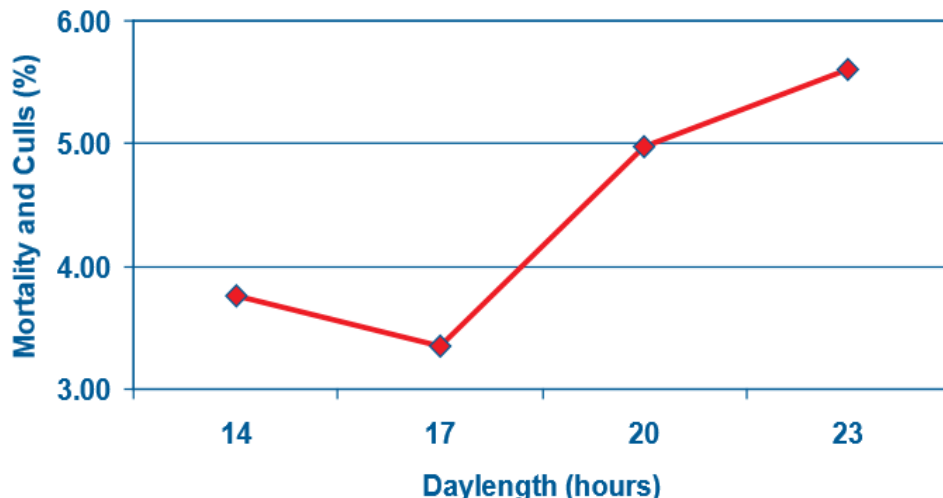
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were given 20 to 23 hours of day light there was more time spent at the feeder but without increased growth. All comfort behaviours happen best when day length is set to at 17 hours of light as birds usually best perform between 17 and 20 hours of daylight.

Lighting intensity tips

Lighting intensity impacts feed intake, weight gain and feed conversion from 0 to 35 days. Birds should be started at a higher lux then weaned to a dimmer light setting to

get optimal feed activity. Mortality due to any cause including sudden death syndrome does not differ among broilers set at any lux. Similar mortalities happen when lux is at 5, 50, or 200 lux, although broilers reared at 200 lux have more leg issues, compared to a lower light intensity. When light intensity is raised from 1 to 40 lux, foot pad lesions do tend to decrease. Birds reared at higher lux rates are more active. Although when birds reach an older age (6 weeks), birds do respond to a dimmer setting to dust bathe or scratch. Ensure light is distributed evenly throughout the barn. Using a light meter to measure the lux in each area of the barn will ensure adequate and similar measurements in all areas of the barn to avoid brighter and darker areas.



How does lighting colour affect the growth of broilers?

Studies have shown birds raised under green and blue lights have benefits on carcass weight. Eating frequency tends to be higher under blue and green lights, but when birds are given the option of red, green and yellow lights, they spend more time under the green yellow lighting. Research has also shown blue lights may also help birds with stress and fear response. This also shows positive effects on physiological performance and reduce intestinal bacteria load compared to red and white lights. Broiler metabolism could be affected in a positive way by green and blue lights for reaching the top tier of growth production.

Conclusion

Lighting programs are critical to on-farm growth of broilers, as the goal is to get the best performance. Things such as light intensity and day length can affect performance in a number ways of ways, with possible spikes of mortality, better feed intake, and welfare practices. Broiler producers need to monitor and find the right tools to help improve bird welfare, such as coloured lights and the correct amount of light.

Resources:

- [RossTech Lighting for Broilers](#)
- [Ross Broiler Management Handbook](#)
- [Light Wavelengths/Colours: Future Prospects for Broiler Behaviour and Production](#)
- [2013 Code of Practice for the Care and Handling of Chickens, Turkey and Breeders: Lighting](#)