

Lighting Management for Poultry



Dr. Musabbir Ahammed
Professor, Dept. Of Poultry Science
Bangladesh Agricultural University

Introduction

- Birds are extremely sensitive to photoperiod.
- Growing pullets, when they reach a certain stage of sexual maturity, are stimulated by increasing day-length.
- Longer days cause release of LH and FSH from the anterior pituitary. These set of hormones stimulate the process leading to sexual maturity and egg laying.
- Artificial lighting for chicken was first carried out to prevent the drop of egg production when the days became shorter.

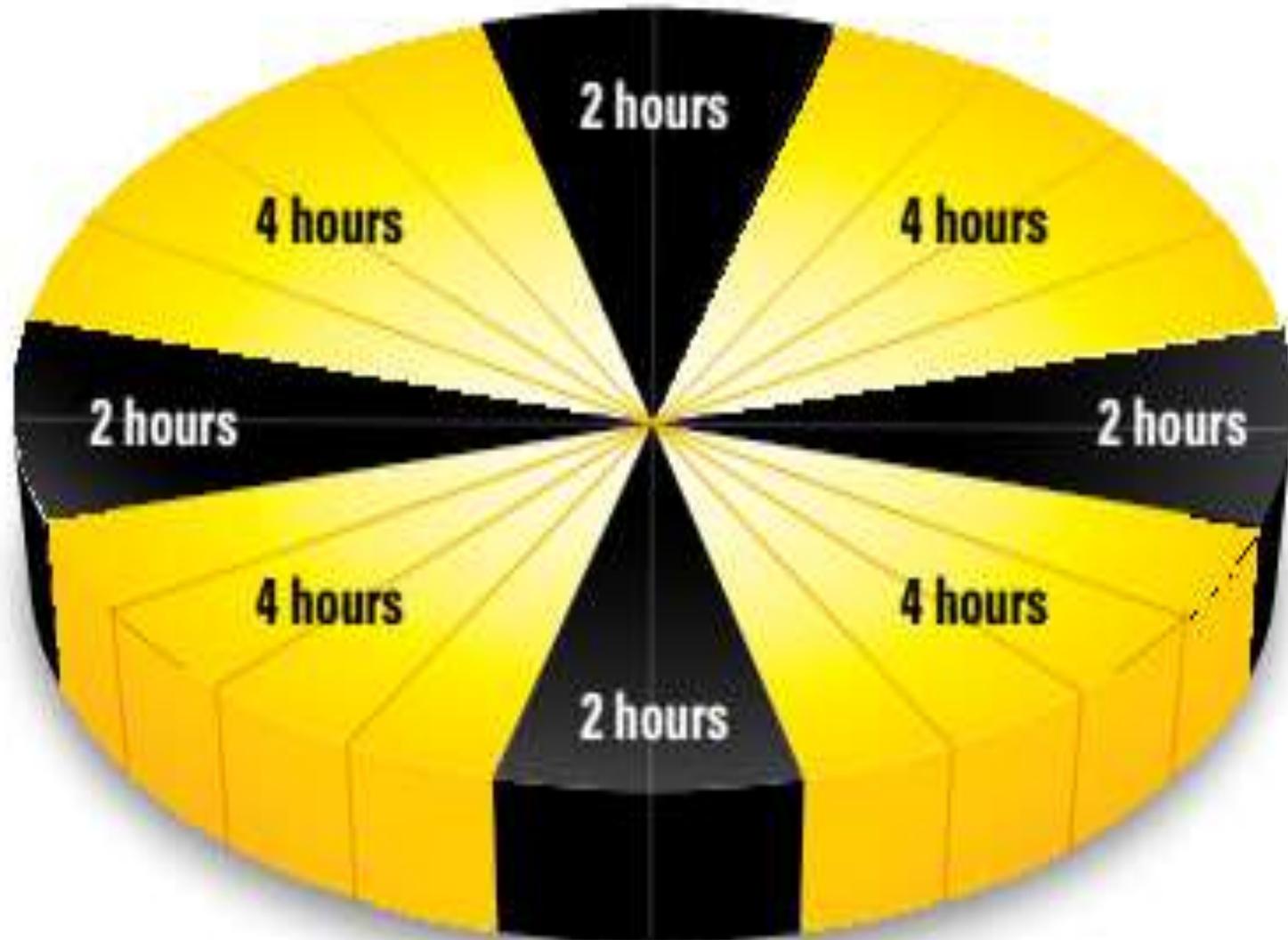
General principles of lighting

- It will influence the age of sexual maturity.
- It will influence feed consumption.
- In addition to the influence of growth light will effect:-
 - ✓ Progressive growth of the digestive system
 - ✓ Gradual adaption to a body clock
(e.g. anticipation of a dark period)
 - ✓ Lack of night time energy supply when dark periods are too long.

Lighting During Brooding Period

- An intermittent lighting program is preferred.
- If not, then use 22 hours of light from 0–3 days and 21 hours of light from 4–7 days.
- Do not use 24 hours of light.
- Brightness (30–50 lux) during 0–7 days helps chicks quickly find feed and water and adapt to the new environment.
- After the first week, reduce light intensity and begin slow step-down lighting program.

INTERMITTENT LIGHTING PROGRAM FOR CHICKS



Intermittent lighting for chicks

- Use from 0–7 days (can be used up to 14 days of age).
- Synchronizes chicks' activities and feedings.
- Establishes more natural behavior of rest and activity.
- May improve 7 day livability and pullet body weight.
- May improve antibody response from vaccinations.

General Guideline for Lighting During Growing

- When pullets are transferred to layer house at 15 to 16 weeks, add 1 hour to the day-length for proper growth.
- Increasing day-length 15 min every other week until 16 hrs are reached.
- Maintain 16 hrs thereafter.
- Intensity 40 to 50 lux is sufficient at feeder and water level.

Cont..

- Never decrease light on pullets in the on-set of egg production.
- Vices (picking) can often be controlled by using red bulbs or the same by higher wattage.
- Keep light bulbs clean to prevent loss of intensity.
- Position lights to minimize bright and dark areas in the house.
- Alternating the height of lights improves light distribution to all cage levels.

General Guideline for Lighting During Laying

- In the production as well as the rearing periods, the lighting program greatly influences the feed consumption.
- In addition, during all its life, a chicken remains sensitive to changes in the duration of illumination.

Cont..

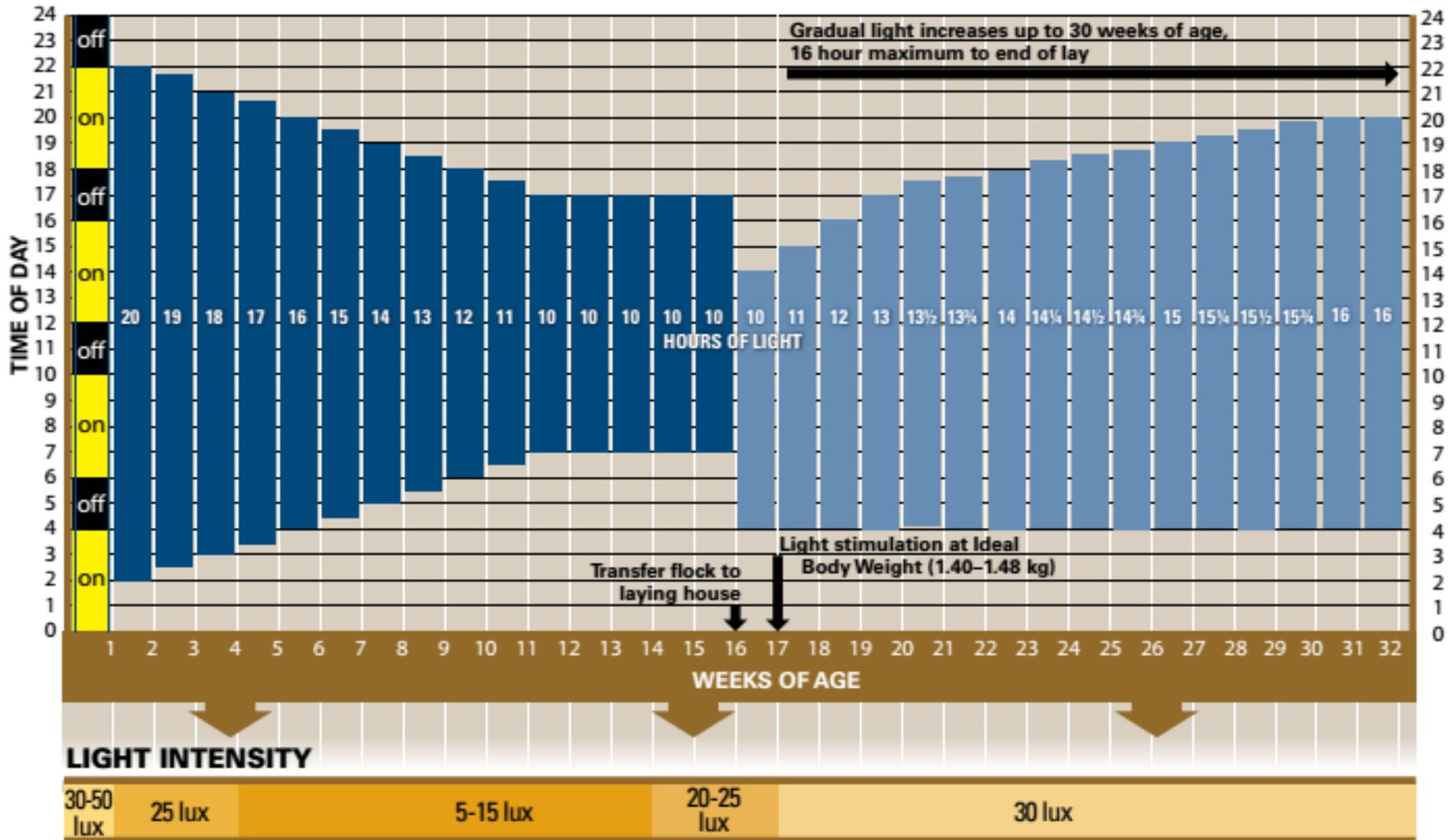
The objective of the lighting programs during production period is:

- To encourage growth at start of lay.
- To counteract the harmful effects of decreases in natural day length.
- To control the liveability through the light intensity management.
- To improve egg shell quality.

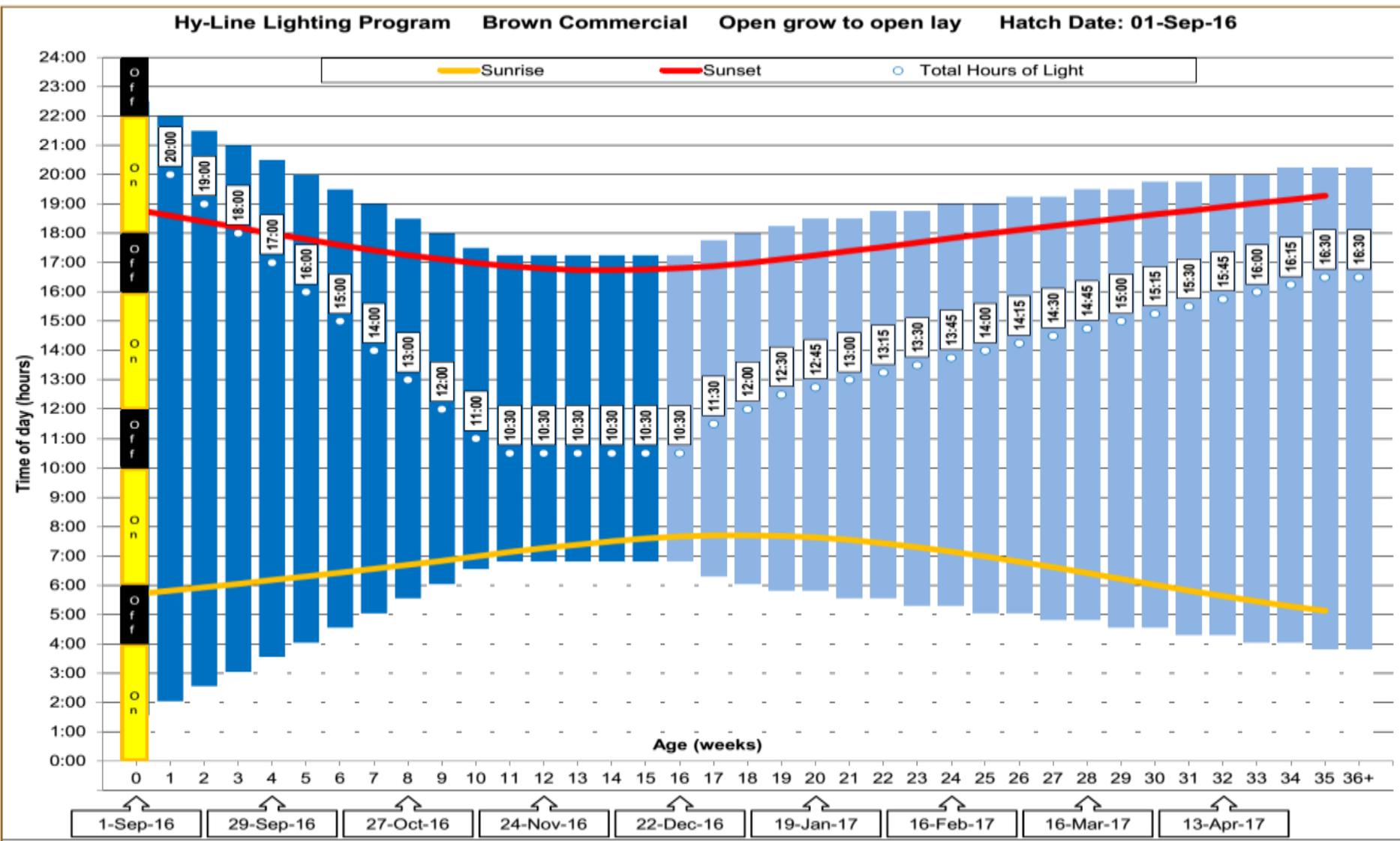
Light Program for Light-Controlled Housing

(www.hylineweblighting.com)

The Hy-Line Brown hen requires a slower step-down of light hours from 0–12 weeks to prevent early sexual maturity and promote good body weight uniformity.



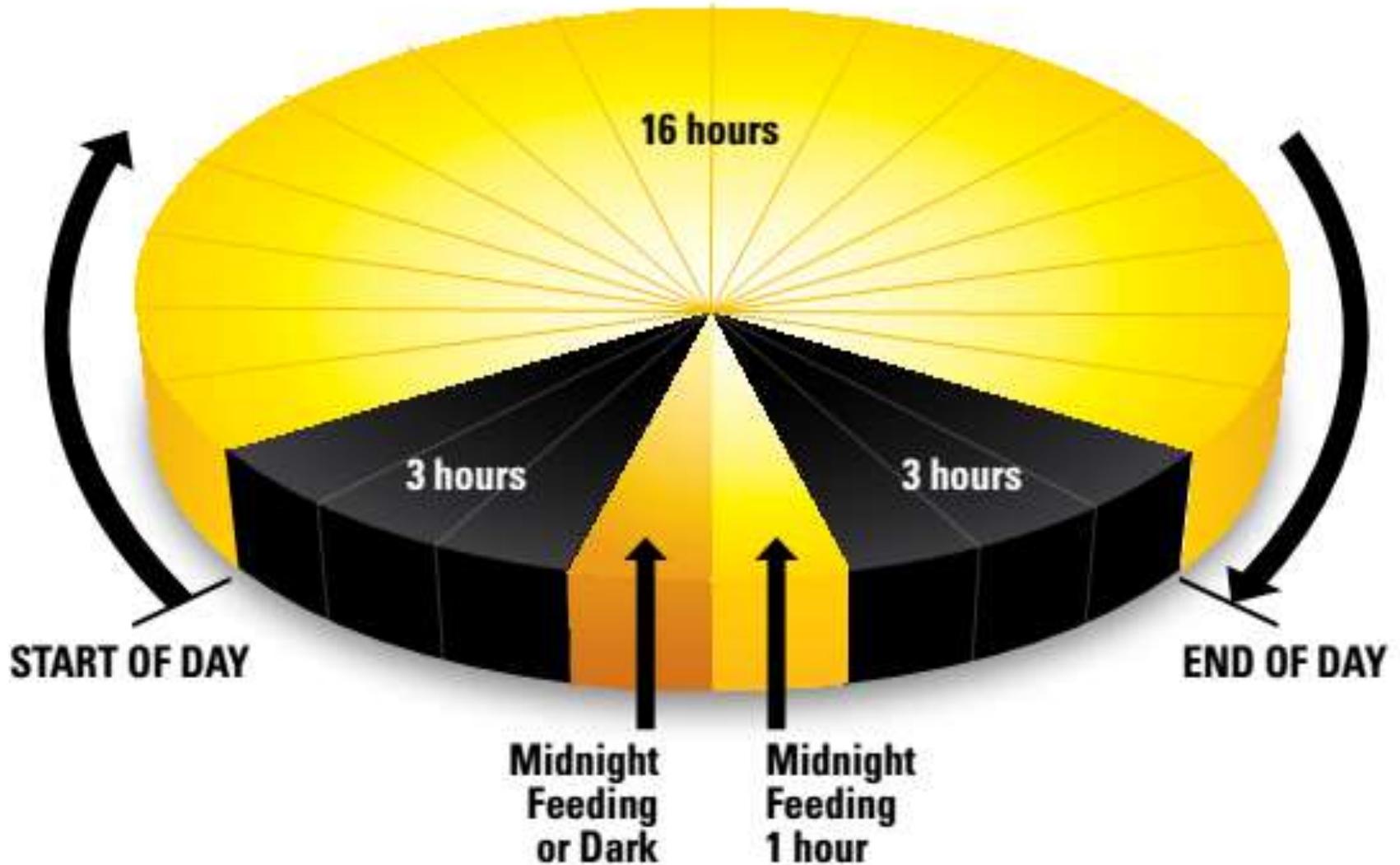
Customized Lighting Programs for Open-Sided Housing



Midnight Feeding/Lighting Program

- Optional lighting technique that promotes greater feed intake encourage growth at start of lay.
- Used whenever more feed intake is desired
- Increases calcium absorption during the night, when most egg shell is formed
- Helps maintain feed consumption in hot climates.
- Midnight feeding may increase feed intake 2–5 g/day per bird.

Midnight Feeding/Lighting Program



Summary of lighting schedules and intensities

Bird type	Lighting hour and intensity
Young chickens (1 st week)	22 hrs (0 - 3) days and 21 hrs (4 - 7) days or Intermittent lighting at 40 lux intensity.
Young chickens (2 nd week)	20 hrs continuous lighting or Intermittent Lighting at 30 lux intensity.
Growing pullets (3 to 11 wks)	From 18 hrs to 10 hrs continuous lighting. Step-down lighting at (5 to 15) lux intensity.
Growing pullets (12 to 15 wks)	From 12 hrs constant light at (15 to 30) lux.
Growing pullets (16 to 23 wks)	From 13 hrs to 15 hrs continuous lighting. Step-up lighting at (30 to 40) lux intensity.
Layers (after 24 hr)	From 16 hrs constant light at (40 to 50) lux.

Thank
you