

The dark hours are doing the work.

Two manuals — Aviagen Ross 2025 and Cobb 2021 — read straight from the tables.

Continuous light does not grow a bigger bird

Aviagen, Ross Handbook 2025 (p.89):
"...continuous lighting results in higher feed consumption and faster growth is incorrect... [it results] in depressed market weights."
A defined light/dark cycle is the tool — not an absence of one.

A LIGHTING PROGRAM HAS FOUR DIALS (Ross p.89)

Photoperiod hours

Photoperiod distribution

Colour temperature

Light intensity

Dark hours: a 4-6h floor, or tiered by weight?

	DARK / 24h		TRIGGERED BY
Ross — general	4-6 h	min 4 h	day 7 (age)
Cobb <2.5 kg	6 h	peak	130-180 g
Cobb 2.5-3.0 kg	8 h	peak	130-180 g
Cobb >3.0 kg	10 h	peak	130-180 g

Ross caps the dark at a 4-6h floor and starts it by age (day 7). Cobb ties it to slaughter weight — deeper dark for heavier birds — starting at 130-180 g and stepped back down, one hour at a time, before catching. Same idea, two depths of night.

Light intensity: bright to brood, then dim — but never below 5 lux

Brooding 0-7 d	30-40 lux (Ross, whole-house) · 25 lux min (Cobb)
Growing (from 130-180 g)	5-10 lux — both manuals agree
Hard floor	< 5 lux cuts feed intake & daily gain — both warn
Dark period	< 0.4 lux to be a true night (Ross)

Colour temperature: cooler for light birds, warmer for heavy

Broilers < 2 kg
5,000-6,000 K (cool, blue)

Broilers > 2 kg
3,500-4,500 K (warmer)

A Ross figure (Cobb speaks only qualitatively). Blue/green wavelengths (450-560 nm) promote calmness and can improve FCR, livability and leg health; red (>620 nm) raises aggression. Wednesday's paper tests white vs blue vs green directly.

The rule this deck is arguing for

Give the birds a real, single block of night — 4h minimum, deeper for heavier birds — bright to brood then dimmed to 5-10 lux, changed gradually over 2-3 days, never abrupt. Then check the birds actually got the dark you set: light leaks, and timers don't watch.

Based on Aviagen Ross Broiler Management Handbook 2025 (Section 6, pp.88-94) and Cobb Broiler Management Guide 2021 (§5.3, pp.41-43). Full provenance: 01-monday/SOURCES.md

Light is four dials, not one switch

Ross Handbook 2025, p.89 — Considerations for Lighting Management

Why continuous light is the wrong instinct

The intuition is simple: lights on means the bird eats more and grows faster. Aviagen says this is incorrect. Run near-continuous light (a dark period of up to an hour) for the life of the flock and market weights are depressed, not raised. The dark is not lost feeding time — it is when energy is conserved and the bird lays down late growth.

Photoperiod length

Hours of light and dark in each 24h. The headline number people argue about.

Photoperiod distribution

How those hours are arranged — one block, or split (intermittent).

Colour temperature

Warm vs cool light, set by the mix of wavelengths (measured in Kelvin).

Light intensity

How bright it is — measured in lux, and it changes with bird age.

These dials interact

Ross is explicit that the four settings are not independent — change the photoperiod distribution and growth, FCR and livability can move; change the intensity and the wavelength composition changes too. A lighting program is a system, not a timer setting.

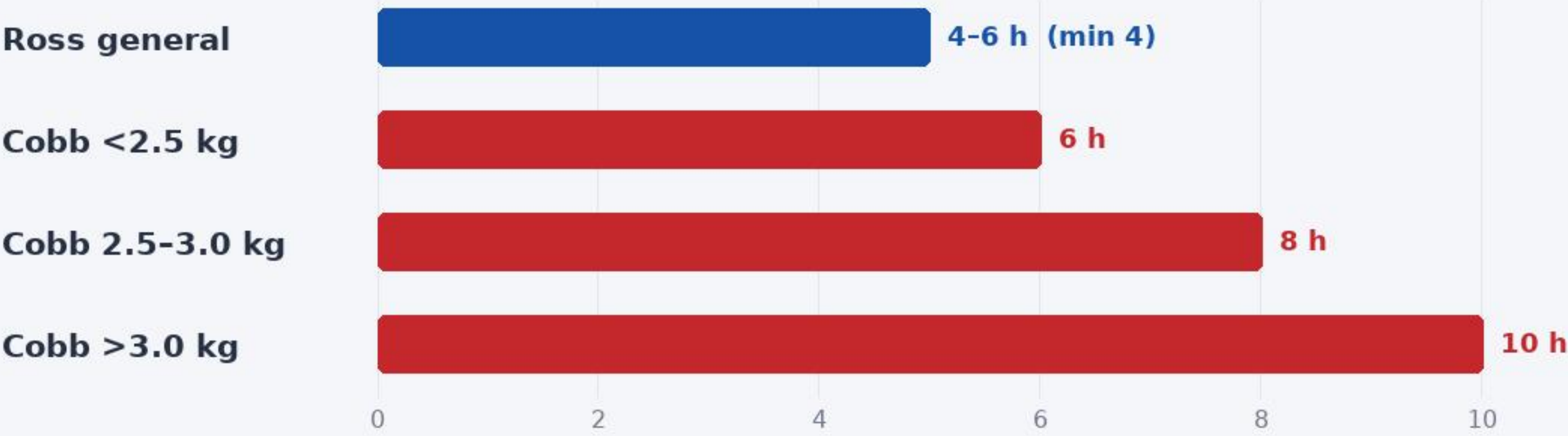
What page 1 compressed into one line

Continuous light is the wrong default. Everything else on this deck is how the two manuals turn the four dials — and where they disagree.

How deep should the night be?

Ross p.94 general programme vs Cobb p.42 four Standard Lighting Programs

Peak dark hours per 24h — by programme



Ross sets one floor for all birds; Cobb sets the depth of night by target slaughter weight.

Ross — one general programme, triggered by age

Day 0-1: 23h light (30-40 lux), 1h dark (<0.4 lux).
Day 2-7: increase dark gradually to 4-6h by day 7.
After day 7: a minimum of 4h continuous darkness; around 5h is optimum (4-6h).
Ross publishes no per-weight dark schedule — this 4-6h floor is the whole curve.

Cobb — four programmes, triggered by weight (130-180 g)

Opt 1 & 2 (<2.5 kg): rise to 6h dark, then step down before processing.
Opt 3 (2.5-3.0 kg): 8h → 7 (d21) → 6 (d28) → 5 (d35) → 4 (d42) → 3 → 2 → 1.
Opt 4 (>3.0 kg): rise to 10h, the deepest night, then a long step-down.
Rule: one single block of dark, increased/decreased one hour at a time — never split.

Why it is set up this way

A heavier, older bird spends longer on the farm and benefits from more rest and a stronger circadian signal; Cobb notes ≥6h of continuous dark improves immune development.
Ross's separate per-market schedules live in the Ross 308 supplement (not shown here) — so on this deck Ross is the general floor and Cobb Option 3 is the representative curve.

Bright to brood, then dim — with a hard floor

Ross p.90 Light Intensity + Cobb p.41 Light Intensity and Distribution

PHASE	ROSS	COBB
Brooding 0-7 d	30-40 lux*	25 lux min
Growing (130-180 g+)	5-10 lux	5-10 lux
Dark period	< 0.4 lux	true dark
Pre-catch	≥ 5-10 lux	10-20 lux

* Ross whole-house; 80–100 lux for spot brooding. Values in the darkest part of the house.

The hard floor: never below 5 lux in the growing phase

Both manuals draw the same line. Cobb: dropping below 5 lux (0.5 fc) 'risks the reduction of daily feed consumption and a decrease in the average daily gain.' Ross: a low daytime intensity (<5 lux) 'may negatively impact mortality, FCR, and growth' — and can affect eye growth and footpad health. Dim for calm and FCR, but 5 lux is the bottom.

Uniformity matters as much as the number

Cobb: intensity must not vary more than 20% from the brightest to the darkest place at floor level. A bright patch and a dark corner in the same house is two lighting programs at once. Even distribution is a condition of every target on this page.

The legal floor (EU example)

Where it applies, EU law (Directive 2007/43/EC) requires a minimum of 20 lux over at least 80% of the house surface and at least 6 hours of darkness from day 8. Local law overrides the breed target wherever it is stricter — Ross and Cobb both say so.

Cooler for light birds, warmer for heavy

Ross p.91 — colour temperature (Kelvin) and wavelength

Target < 2 kg (4.4 lb)

5,000-6,000 K

cool white — blue dominant

Target > 2 kg (4.4 lb)

3,500-4,500 K

warmer white

What the Kelvin number tells you

Colour temperature is the mix of wavelengths in the light. Below 3,000 K is 'warm white' (red dominant); above 4,000 K is 'cool' (blue dominant). Knowing the K value tells you the dominant wavelength, so you can match the bulb to the flock's market weight.

Wavelength changes behaviour, not mainly growth

Blue/green light (450-560 nm) has been shown to promote calmness — which can improve FCR, livability and leg health, and reduce processing rejects. Red (>620 nm) increases aggression via testosterone. Growth appears better under violet-to-green (415-560 nm) than red or broad white — but Ross is clear there is no strong evidence one bulb colour simply grows a bigger bird.

Where Cobb lands

Cobb gives no Kelvin bands for broilers — it says broilers 'perform equally over a range of colours as high as 5,000 K,' and reserves warm 2,700 K light for pullet rearing, not broilers. So the Kelvin targets on this page are a Ross recommendation; treat colour as a welfare and behaviour lever first.

Intermittent beats continuous — if changed gently

Ross pp.89-90 — light duration, pattern and gradual change

One continuous block, not scattered darkness

Whether the programme is straight (one dark block) or intermittent (repeated light/dark within 24h), Ross requires that at least one dark period contains a continuous block of at least 4 hours. Cobb agrees: a single block of darkness in each 24-hour period. Fragmented darkness does not give the bird the rest — or the circadian signal — it needs.

Change the programme gradually — over 2-3 days

Abrupt reductions in light hours cause immediate drops in feed intake, body-weight gain and feed efficiency. Ross: change the programme (both day length and intensity) gradually, over 2-3 days rather than in one step. This matters most for birds processed young, which have less time to adapt their feeding behaviour.

Dawn-to-dusk dimming

Bringing light up and down over 15-45 minutes lets birds move toward the feeders in stages, instead of crowding all at once when a switch flips. Both manuals recommend a dawn-to-dusk dimming system where possible — feeding activity peaks just after lights-on and for about an hour before lights-off, so a soft edge on the day is worth having.

Practical guardrails for intermittent programmes

Keep them simple. Provide adequate feeder and drinker space. Stagger the light (awake) periods house-to-house so the farm's water supply is not pushed past its limit when every house wakes at once. And whatever the schedule — it must comply with local law.

What the dark buys — and what a timer can't see

Cobb p.41 Lighting Program Benefits + Ross pp.89–90

Feed conversion

Energy is conserved during rest — an improvement in FCR (Cobb).

Immune development

The light/dark cycle raises melatonin; $\geq 6\text{h}$ dark aids immunity (Cobb).

Skeleton & legs

Mortality and skeletal defects reduced; leg health benefits (both).

Uniformity & yield

Better flock uniformity; breast-meat % may be higher (Ross).

The gap the timer can't see

A lighting program is set on a clock, but its effect depends on what the birds actually experience. Ross warns to test for light leakage through air inlets, fan housings and door frames — a dark period at the timer can still be 2 lux at the bird. Cobb's $\leq 20\%$ uniformity rule is the same problem in daylight: the schedule on paper is not the light in the house.

What no timer records

Whether the flock is resting through the dark you scheduled, or standing and disturbed. Whether one end of the house is a different lighting program from the other. That is a behaviour signal, read continuously, per group — the part nobody is standing in the house at 2 a.m. to see.

Save this and check one thing tomorrow

Walk the house during the dark period with the timer off and a light meter at bird height. If any corner reads above 0.4 lux, the night your program promised isn't the night the birds are getting — whatever the schedule says.

Based on Aviagen Ross Broiler Management Handbook 2025 (Section 6) and Cobb Broiler Management Guide 2021 (§5.3). Full provenance: 01-monday/SOURCES.md