



Ventilation Settings & Requirements

Minimum-ventilation rates, house temperature, and air-quality targets by bird age & weight — drawn from each breeder's own management guide.



Ross.

AN AVIAGEN BRAND · 2025



VENTILATION & TEMPERATURE BY DAY

Min-vent rate per bird + house temp · Day 1 – 42

DAY	TEMP	M ³ /HR	WEIGHT
Day 1	30 °C	0.10	55 g
Day 7	27 °C	0.26	0.20 kg
Day 14	25 °C	0.49	0.47 kg
Day 21	22 °C	0.80	0.90 kg
Day 28	20 °C	1.15	1.47 kg
Day 35	20 °C	1.46	2.07 kg
Day 42	20 °C	1.79	2.65 kg

VENTILATION RAMP · M³/HR PER BIRD



AIR-QUALITY LIMITS

Ammonia (NH ₃)	< 10 ppm
Carbon dioxide	< 3000 ppm
Carbon monoxide	< 10 ppm
Rel. humidity	60–70 – 50%
Air speed at chick	< 0.15 m/s

TIPS & TRICKS

- Rising RH is the first warning** of under-ventilation — vent to control humidity, not just the bird's O₂ need.
- Run fans on a **5-min (300 s) cycle timer**; heat stays on below set-point even while fans run.
- Set inlet gap **3–5 cm** and hold negative pressure so cold air throws to the ceiling apex, not onto birds.
- Always ventilate — **even in cold weather**. Judge by bird behaviour & CO₂, not the table alone.

Cobb.

BROILER MANAGEMENT · 2021



VENTILATION & TEMPERATURE BY DAY

Fan ON-sec per 5-min (300 s) cycle + house temp

DAY	TEMP	SEC ON	DENSITY
Day 1	32 °C	45–60	brood
Day 7	30 °C	~85	brood
Day 14	27 °C	120	brood
Day 21	22–24 °C	~148	28 kg/m ²
Day 28	20–22 °C	~174	32 kg/m ²
Day 35	19–21 °C	180	34 kg/m ²
Day 42	16–18 °C	180	40 kg/m ²

Day 1–14 temp = Cobb brooding table (50% RH). Day 21+ temp = Cobb density table; the kg/m² shown is a typical value for that age.

FAN ON-TIME RAMP · SEC PER 300 S



AIR-QUALITY LIMITS

Oxygen (O ₂)	> 19.6%
Ammonia (NH ₃)	< 10 ppm
Carbon dioxide	< 3000 ppm
Respirable dust	< 3.4 mg/m ³
Rel. humidity	< 65%
Air speed at chick	< 0.30 m/s

TIPS & TRICKS

- Never exceed a 10-min cycle** — 5-min ON/OFF is preferred; total cycle stays constant, only ON-time grows.
- Raise ON-time in **10–15 s steps** and watch 24 h before the next change.
- Timer fan capacity: **0.3 m³/min/m²** hot climates, **0.61–0.77** cold.
- If CO₂ > 3000 ppm or O₂ < 19.6%, raise the rate — inactive, noisy birds mean under-ventilation.



Shared targets — true for both flocks

Whatever the strain, the ceiling on bad air is the same. Ventilate to hold these, then fine-tune to the birds.

CO₂ <3000
CO₂ PPM

NH₃ <10
NH₃ PPM

O₂ <10
CO PPM

300 s
FAN CYCLE



Sources: Ross Broiler Management Handbook 2025 (Aviagen) · Cobb Broiler Management Guide 2021 (Cobb-Vantress).
Figures are manufacturer guidelines — always adjust to bird behaviour, biomass & local climate.
Bird photos © respective breeders.



DeepLoop

AI that watches livestock 24/7 — catching problems before they cost you performance and profit.

deeploopos.ai

Ross 308 — temperature & air

Minimum-vent rate per bird across the 42-day growout

ROSS 308

min-vent m³/hr per bird

DAY	TEMP	m³/HR	WEIGHT
Day 1	30 °C	0.10	55 g
Day 7	27 °C	0.26	0.20 kg
Day 14	25 °C	0.49	0.47 kg
Day 21	22 °C	0.80	0.90 kg
Day 28	20 °C	1.15	1.47 kg
Day 35	20 °C	1.46	2.07 kg
Day 42	20 °C	1.79	2.65 kg

VENTILATION RAMP · m³/hr per bird



18x more air by day 42

A bird needs 0.10 m³/hr on day 1 and 1.79 m³/hr at depopulation — the curve steepens as biomass climbs.

Cobb 500 — temperature & air

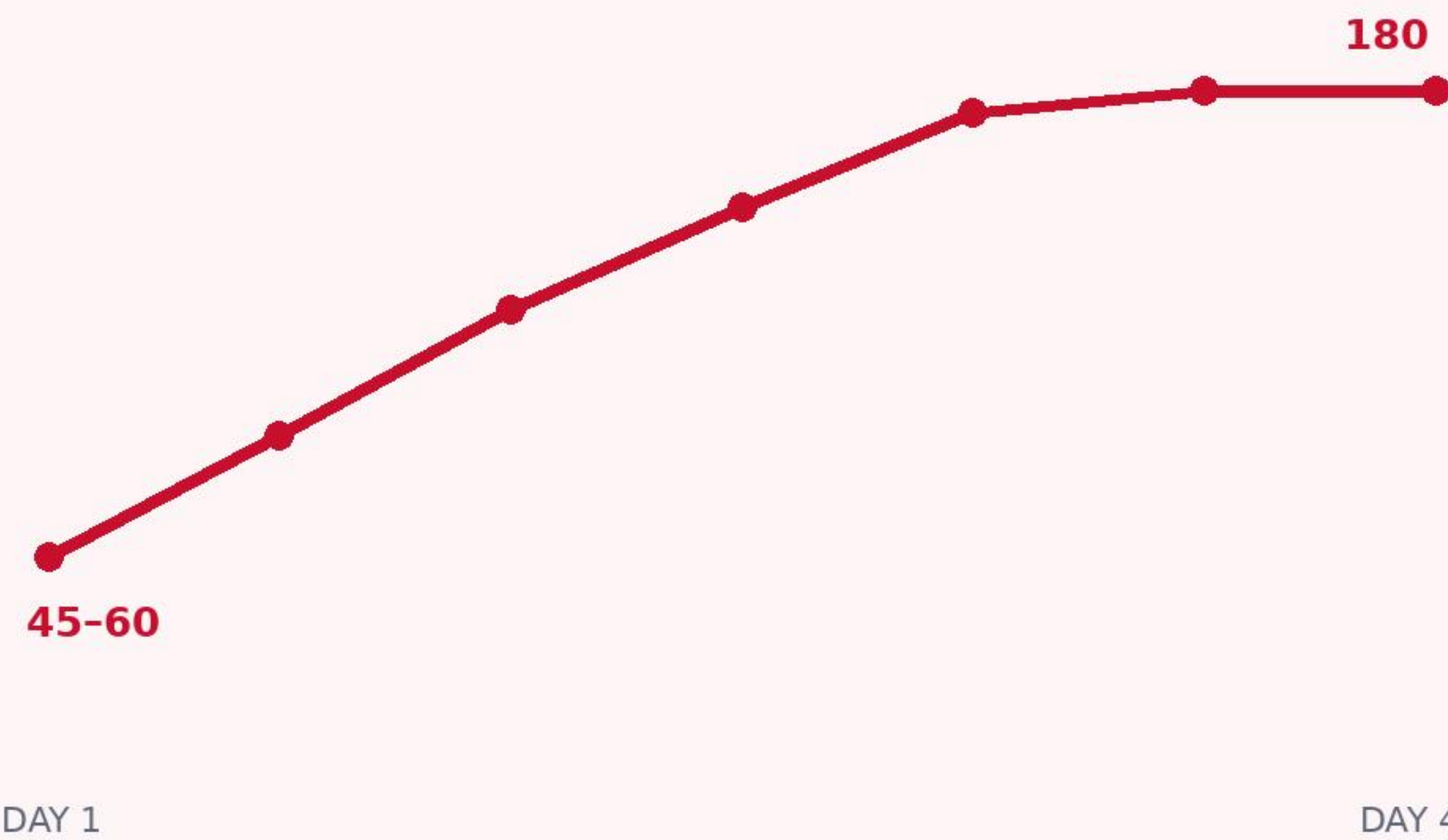
Fan ON-time per 5-minute cycle across the growout

COBB 500

fan ON-sec per 300 s cycle

DAY	TEMP	SEC ON	DENSITY
Day 1	32 °C	45-60	brood
Day 7	30 °C	~85	brood
Day 14	27 °C	120	brood
Day 21	22-24 °C	~148	28 kg/m²
Day 28	20-22 °C	~174	32 kg/m²
Day 35	19-21 °C	180	34 kg/m²
Day 42	16-18 °C	180	40 kg/m²

FAN ON-TIME RAMP · sec per 300 s cycle



The curve flattens, the cycle does not

ON-time rises to 180 s and holds — total cycle stays at 300 s throughout. Only the ON portion grows.

Air-quality limits

The ceilings each guide sets on house air

ROSS 308

Ammonia (NH ₃)	< 10 ppm
Carbon dioxide	< 3000 ppm
Carbon monoxide	< 10 ppm
Rel. humidity	60-70% → 50%
Air speed at chick	< 0.15 m/s

COBB 500

Oxygen (O ₂)	> 19.6%
Ammonia (NH ₃)	< 10 ppm
Carbon dioxide	< 3000 ppm
Respirable dust	< 3.4 mg/m ³
Rel. humidity	< 65%

Shared ceilings — true for both flocks

NH₃ < 10 ppm · CO₂ < 3000 ppm · CO < 10 ppm

Ventilate to hold these, then fine-tune to the birds.

How to use them

- Gas limits are ceilings, not targets**
If you are sitting at the limit, the house is already under-ventilated — aim well below.
- RH tells you first**
Rising humidity is the earliest sign of insufficient minimum ventilation, before gases climb.
- Measure at bird level**
Sensors up in the roof space read a different house than the one the birds are living in.

What each guide stresses

Practice notes straight from the handbooks

ROSS 308

- **Rising RH is the first warning**
of under-ventilation — vent for humidity, not just O₂.
- **Set inlet gap 3-5 cm**
hold negative pressure so air throws to the ceiling apex.
- **Always ventilate, even in cold weather**
judge by bird behaviour and CO₂, not the table.
- **Sensors at bird level**
max 30 cm above floor, out of line with heaters and inlets.

COBB 500

- **Never exceed a 10-min cycle**
5-min ON/OFF preferred; only ON-time grows.
- **Raise ON-time in 10-15 s steps**
then watch 24 h before the next change.
- **Inlet opening 2.5-5 cm**
so cold jets attach to the ceiling, detach near centre.
- **Smoke-test in cold weather**
or hang ribbon tape to see where the jet really goes.

Walking the house

What Ross tells you to look at — before the panel

- **Bird distribution**
Are areas being avoided? Drafty, cold, hot, or unevenly lit.
- **Bird respiration**
Panting? Specific to one area suggests an airflow or temperature problem.
- **Bird behaviour**
Drinking, feeding, resting — normally split roughly evenly between the three.
- **Litter condition**
Capping from leaks or cold air falling to the floor? Droppings wet or solid?

Same thermometer, different bird

Ross Table 2.5 — optimum temp shifts with humidity

ROSS 308 · TABLE 2.5

dry-bulb °C by body weight

At the same body weight, the temperature a bird needs shifts by several degrees as RH changes.

WEIGHT	40% RH	50% RH	60% RH	70% RH
44 g	36.0	33.2	30.8	29.2
100 g	33.7	31.2	28.9	27.3
180 g	32.5	29.9	27.7	26.0
290 g	31.3	28.6	26.7	25.0
425 g	30.2	27.8	25.7	24.0
590 g	29.0	26.8	24.8	23.0

Read it this way

A 100 g chick needs 33.7 °C at 40% RH — but only 27.3 °C at 70% RH.
Over 6 °C of difference. Same bird, same day, same number on the controller.

Why it matters

Before changing house temperature, check the minimum ventilation rate first — bad RH is usually a vent problem.

Where Ross says to measure

- **At bird level**
max 30 cm (11.8 in) above floor height, evenly spread along the house.
- **Away from interference**
out of direct line with heaters and inlets, where birds cannot touch them.
- **Twice daily for 5 days**
then once daily — temperature and RH both, not temperature alone.

Negative pressure by house width

Cobb §9.3 — how hard the inlet must pull

COBB 500 · SECTION 9.3

pressure drop across the inlet

Wider house = higher pressure drop needed for the jet to reach the centre before it falls.

HOUSE WIDTH	Pa	in wc	m/s	TRAVELS
10 m / 30 ft	20	0.08	5.7	5.0 m
12 m / 40 ft	25	0.10	6.5	6.0 m
15 m / 50 ft	31	0.12	7.2	7.5 m
18 m / 60 ft	37	0.15	7.8	9.0 m
21 m / 70 ft	43	0.17	8.4	10.5 m
24 m / 80 ft	49	0.20	9.0	12.0 m

The rule underneath it

For every 61 cm (2 ft) the incoming air must travel, you need more pressure drop.
Below 5 °C outside, increase both pressure and inlet opening.

Most common failure

Poorly managed inlets → cold drafts along the sidewall → litter humidification and compaction.

What the pressure actually buys you

